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NATIONAL REGISTRY OF NATURAL LANDMARKS 1989

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NATIONAL REGISTRY OF NATURAL LANDMARKS

Compiled in the Wildlife and Vegetation Division
Natural Landmarks Program, National Park Service

U. S. Department of the Interior
Washington, D. C.

National Registry of Natural Landmarks

SUMMARY: This notice lists all National natural landmarks currently included on the National Registry of Natural Landmarks. The listing provides information on each landmarks location, natural values, designation date, ownership and owner agreement status. In the future only additions to the list will be published, so this list should be retained for your reference. Federal agencies should consider the existence and location of national natural landmarks when assessing the impact of their actions on the environment under Section 102(2)(c) of the National Environmental Policy Act of 1969 (83 Stat. 852; 42 U. S. C. 4321).

FOR FURTHER INFORMATION CONTACT: Mr. Hardy L. Pearce, Acting Chief, Natural Resources Program Branch, Wildlife and Vegetation Division, National Park Service, Washington, D. C. 20013-7172, (202) 343-8100.

SUPPLEMENTARY INFORMATION: The Secretary of the Interior established the National Natural Landmarks Program in 1962 to identify and encourage the preservation of the full range of ecological and geological features that are nationally significant examples of the Nation's natural heritage. Potential natural landmarks are identified through studies conducted by or for the National Park Service (NPS), further evaluated in the field by expert natural scientists, and if judged nationally significant, designated as landmarks by the Secretary of the Interior. Once a landmark is designated, it is included on the National Registry of Natural Landmarks, which currently lists 586 sites.

The Natural Landmarks Program has been administered by NPS since May 18, 1962, with the exception of the period from January 25. 1978 to May 31, 1981 when it was administered by Heritage Conservation and Recreation Service (HCRS). HCRS was abolished May 31, 1981.

The act of designating a sites a natural landmark is not a land withdrawal and in no way affects the ownership of the site. It does not dictate the type or intensity of activity that may be undertaken in a landmark. Landmark preservation is made possible only through the long-term commitment of public and private owners to protect an area's outstanding values. The Department encourages owners and managers to protect the nationally significant values of their landmarks, but this cooperation is voluntary. However, an owner or administrator who agrees to participate in the National Natural Landmarks Program is expected not to harm the integrity of the natural values being recognized. An owner who enters into a voluntary agreement with NPS to protect the landmark is eligible to receive a certificate which recognizes the special status of the area. A bronze plaque may also be presented for appropriate display on the site.
Federal agencies should considered the existence and location of national natural landmarks when they assess the effects of their actions on the environment under Section 102(2)(c) of the National Environmental Policy Act of 1969 (83 Stat. 852; 42 U. S. C. 4321).

NPS prepares an annual report for the Secretary of the Interior to transmit to the Congress which identifies all national natural landmarks with known or anticipated damage or threats to the integrity of their resources (90 Stat. 1940; 16 U. S. C. 1a-5).

National Registry of Natural Landmarks

The National Registry of Natural Landmarks includes nationally significant ecological and geological features in 48 States, American Samoa, Guam, Puerto Rico and the Virgin Islands. Of the 586 landmarks listed on the National Registry of Natural Landmarks, one-half are administered solely by public agencies, e.g., Federal, State, county, or municipal governments. Almost one-third are owned entirely by private parties. The remaining are owned or administered by a mixture of public and private owners.

The following list contains all national natural landmarks included on the National Registry of Natural Landmarks as of October 30, 1987. The landmarks are arranged alphabetically by State and county. The number of landmarks in each State is enclosed in parentheses following each State's name. A description of each landmark's location, natural values, designation date, ownership, and owner agreement status is provided. Each landmark's designation date is enclosed in parentheses (), and more than one date indicates that the area's boundary was changed after its original designation. Ownership data are arranged in the following arbitrary order and do not reflect the relative amount of land owned by any party: Federal, State, County, Municipal, Private. An asterisk (*) indicates that the owner(s) of a landmark have entered into a voluntary agreement to protect the site's natural values.

Because many national natural landmarks are privately owned and/or not managed for public access, landowner permission must be obtained before a visit is made to them. The specific location for some landmarks is not provided because of an owner's request for minimum publicity and/or the fragility of the landmark's natural features.

ALABAMA (7)

Baldwin County

MOBILE-TENSAW RIVER BOTTOMLANDS	Extends into Mobile and Washington Counties--Extends from Mobile Bay north for 35 miles. One of the most important wetlands in the Nation containing a variety of habitats, from mesic flood plains and freshwater swamps to brackish water marshes, supporting several rare and endangered species. (May 1974) Owner: Private, State

Franklin County

*DISMALS	Four miles northeast of Hackleburg. A sandstone gorge supporting a virgin, disjunct, montane climax forest containing exceptionally diverse plant life. (May 1974) Owner: Private

Jefferson County

RED MOUNTAIN EXPRESSWAY CUT	This 23-acre site, located along the road cut where U.S. Highway 280 traverses Red Mountain in Birmingham, exhibits an unusual combination of stratigraphic and structural features that record the geological development of this part of the Southern Appalachian fold belt during Paleozoic time. In one location, rocks representing a 150 million-year geological record are exposed along a distance of only about 650 feet, because the strata are tilted. Structural features clearly displayed include unconformities and normal faults. Sedimentary strata represent a range of depositional environments, from intertidal beach and mud flat to offshore, open marine conditions. In addition, the rocks exposed contain a rare Silurian trilobite species. Excellent public interpretation of this site provided by the Red Mountain Museum. (November 1987) Owner: State

ALABAMA

Limestone County	
*BEAVERDAM CREEK SWAMP	Ten miles northeast of Decatur. A large protected tupelo gum swamp which occurs in the Interior Low Plateaus region, rather than its usual occurrence in the Gulf Coastal Plain region. (May 1974) Owner: Federal
Madison County	
*SHELTA CAVE	Within the city limits of Huntsville. A large cave with an underground lake, noted for its diverse aquatic fauna.
Marshall County	
*CATHEDRAL CAVERNS	Four miles northeast of Grant. A series of large chambers containing impressive stalagmites, totem poles, dripstone, and flowing underground streams. (June 1972) Owner: Private
Mobile County	
MOBILE-TENSAW RIVER BOTTOMLANDS	(see Baldwin County)
Morgan County	
NEWSOME SINKS KARST AREA	Between Morgan City and Union Hall. Classic examples of karst development, containing more than 40 caves. (November 1973) Owner: Private
Washington County	
MOBILE-TENSAW RIVERS BOTTOMLANDS	(see Baldwin County)

ALASKA (17)

***ANIAKCHAK CALDERA (ANIAKCHAK CRATER)**	24 miles southeast of Port Heiden. On of the largest explosive craters in the world, which contains Surprise Lake, the headwaters of the Aniakchak River. (November 1967) Owner: Federal
***ARRIGETCH PEAKS**	250 miles northwest of Fairbanks. Carved by glacial ice and running water, they illustrate several phases of alpine glacier activities. The Peaks reveal abrupt transitions from metamorphic to granitic rock, and contain both tundra and boreal forest. (April 1968) Owner: Federal
***BOGOSLOF ISLAND**	25 miles north of Umnak Island in the Aleutian archipelago. Remnant of three volcanic eruptions, habitat for over 5,000 Steller's sea lions, and nesting ground for over 50,000 sea birds. (November 1967) Owner: Federal
***CLARENCE RHODE NATIONAL WILDLIFE RANGE**	On the Bering Sea coast between Hooper Bay and Kipnuk. Excellent example of coastal and upland tundra habitat, and nesting grounds for over one-half of the world's population of black brant, cackling geese and emperor geese. (October 1968) Owner: Federal, State,Private
ILIAMNA VOLCANO	135 miles southwest of Anchorage. Example of a cone-shaped stratovolcano resembling in past history, composition, and appearance the volcanoes of the Pacific Northwest. (January 1976) Owner: Federal
***LAKE GEORGE**	44 miles northeast of Anchorage. Most impressive "self-dumping" lake in the country. When the lake outlet is blocked by the Knik Glacier, the lake swells with water until summer. Then the dam breaks and the water is dumped in a spectacular torrent into the Knik River. (April 1967) Owner: Federal

ALASKA

***MALASPINA GLACIER**	25 miles west of Yakutat. Largest piedmont glacier in North America and one of the largest outside the ice cap regions of the world. (October 1968) Owner: Federal
***MCNEIL RIVER STATE GAME SANCTUARY**	200 miles southwest of Anchorage. Includes the mouth of the McNeil River with a series of low shallow falls which afford good wading and visibility for brown bears fishing for salmon. (April 1968) Owner: State
MIDDLETON ISLAND	155 miles southeast of anchorage. Significant illustration of tectonic uplift as a result of earthquakes, containing important fossil evidence of the Pliocene and Pleistocene Epochs. April 1968) Owner: Federal, Private
***MOUNT VENIAMINOF**	20 miles northeast of Port Moller. Unique active volcano of uncommon size, an important calving ground for caribou, and only known glacier of the continent with an active volcanic vent in its center. (November 1967) Owner: Federal
***REDOUBT VOLCANO**	110 miles southwest of Anchorage. An active stratovolcano, and the second highest of the 76 major volcanoes of the Alaska Peninsula and Aleutian Islands. Visible from Anchorage. (January 1976) Owner: Federal
***SHISHALDIN VOLCANO**	50 miles west of Cold Bay in the Aleutian archipelago. Tallest of known volcanoes of Unimak Island, active today and completely unpredictable. (November 1976) Owner: Federal
***SIMEONOF NATIONAL WILDLIFE REFUGE**	In the Shumagin Island Group south of the Alaskan Peninsula. Ancestral hauling ground for sea otters. (October 1968) Owner: Federal
***UNGA ISLAND**	500 miles southwest of Anchorage in the Shumagin Island Group. Fossil forest resulting from volcanic activity in the Tertiary Period. It is unknown how these tree specimens came to be on the island. (April 1968) Owner

ALASKA

***WALKER LAKE**	250 miles northwest of Fairbanks. Striking example of the geological and biological relationships of a mountain lake at the northern limit of forest growth on the southern slope of the Brooks Range, supporting a full range of ecological communities. (April 1968) Owner: Federal, Private
***WALRUS ISLANDS**	375 miles southwest of Anchorage in Bristol Bay. Farthest southern primary haul-out area for walruses and the only remaining area in the United States where they haul out in appreciable numbers. Over 4,000 have been counted here during the summer. (April 1968) Owner: State
***WORTHINGTON GLACIER**	30 miles east of Valdez. Typical small valley glacier including fine examples of most glacial features from accumulation area to end moraine. Probably the most accessible glacier in Alaska. (October 1968) Owner: Federal, State

AMERICAN SAMOA (7)

***AUNUU ISLAND**	Off the northeastern coast of Tutuila Island. Site of recent episodes of volcanism backed by geologically recent tuff cone. (November 1972) Owner: Communal lands
CAPE TAPUTAPU	On the western tip of Tutuila Island. Natural exhibit of shoreline, offshore volcanic rocks and blowholes sculptured by heavy sea wave action. (November 1972) Owner: Communal lands
FOGAMAA CRATER	On the southwestern coast of Tutuila Island. One of very few illustrations of the most recent episode of volcanism in American Samoa. (November 1972) Owner: Communal lands
***LEALA SHORELINE**	On the southwestern coast of Tutuila Island. Special young flow of basalt interbedded with layers of tuff, illustrating erosion by wave action and covered with dense tropical vegetation. (November 1972) Owner: Communal lands
***MATAFAO PEAK**	One and one half miles south of the city of Pago Pago. Highest peak of Tutuila Island, one of five great masses of volcanic rocks extruded as molten magma during the major episodes of volcanism which created Tutuila Island. (November 1972) Owner: Communal lands
***RAINMAKER MOUNTAIN**	Just east of Pago Pago Harbor. One of the same extrusions as Matafao Peak, and an outstanding example of several gigantic plugs which created Tutuila Island. (November 1972) Owner: Communal lands
VAIAVA STRAIT	On the north-central coast of Tutuila Island. Classic illustration of steep cliffs and erosion-resistant outliers formed by wave action on a volcanic mass. (November 1972) Owner: Communal lands

ARIZONA (9)

Cochise County

***RAMSEY CANYON**	Seven miles south of Sierra Vista. A vertical-sided gorge containing a well-defined microclimatic habitat, which consists of an extension of Mexican flora and fauna into the American side of the International Boundary, and contains plants which normally occur only at higher elevations. (March 1963) Owner: Private
WILLCOX PLAYA	Eight miles southwest of Willcox. The dry remnant of Pluvial Lake Cochise whose natural deposits contain a rich record of climatic effects and fossil pollen during the pluvial periods of the Pleistocene. The largest "dry lake" in Arizona. (May 1966) Owner: Federal

Coconino County

***BARRINGER METEOR CRATER**	15 miles west of Winslow. The largest impact crater yet discovered in the United States. Impact believed to have occurred some 22,000 years ago. (November 1967) Owner: Private
KAIBAB SQUIRREL AREA	Located 30 miles south of Fredonia, the Kaibab Plateau pine forest contains approximately 200,000 acres of pure ponderosa pine in the north section of Kaibab National Forest and provides habitat for the Kaibab squirrel. This rare and restricted species represents a unique form that evolved by geographic isolation, and so is found nowhere else in the world. (October 1965) Owner: Federal

Mohave County

GRAPEVINE MESA JOSHUA TREES	45 miles north of Kingman. Best existing display of Joshua tree species and a superb sample of Mohave Desert community. (April 1967) Owner: Federal, State, Private

ARIZONA

Navajo County

*COMB RIDGE	Only known location for tritylodont fossils in North America, supporting the theory of continental drift. (January 1976) Owner: Private (Navajo Indian Nation)

Santa Cruz County

*CANELO HILLS CIENEGA	One and one-half miles northwest of Canelo. The least disturbed extensive southwestern desert wet grasslands (cienega) along the United States-Mexican border. The area supports the only known population of Canelo lady's tresses, and is one of several areas that support the Gila chub and Gila sucker. (December 1974) Owner: Private
ONYX CAVE	Seven miles northwest of Sonoita. Considered to be the finest cave in Arizona. (May 1974) Owner: Private
*PATAGONIA-SONOITA CREEK SANCTUARY	Adjacent to Patagonia. Permanent stream-bottom habitat supporting rare aquatic biota, including the Gila Topminnow. Only known nesting spot in the country for the rare rosethroated becard. (January 1970) Owner: Private

ARKANSAS (5)

Desha County

*WHITE RIVER SUGARBERRY NATURAL AREA	Four miles northwest of the village of Snow Lake. Partially virgin forest containing excellent examples of three bottomland hardwood forest types and a wildlife population typical of the forest types present. (December 1974) Owner: Federal

Fulton County

MAMMOTH SPRING	Northeastern edge of Mammoth Spring village. Third largest spring in the Ozark Mountains, and a classic example of a spring originating as a resurgent subterranean stream. (June 1972) Owner: State

Mississippi County

*BIG LAKE NATURAL AREA	Three miles east of Manila. Contains a significant amount of virgin timber, a mix of southern, Ozark and midwestern flora, and supports several threatened or endangered bird species. (December 1974) Owner: Federal

Polk County

*ROARING BRANCH RESEARCH NATURAL AREA	Four miles north of the village of Athens. Steep ravine contains a virgin mesophytic forest representing a relict outlier of forests characteristic of Tennessee, Kentucky, and Indiana, and plant species rare in the Ouachitas. (December 1976) Owner: Federal

Saline County

*LAKE WINONA NATURAL AREA	38 miles west of Little Rock. Large virgin shortleaf pine forest reminiscent of those that once covered large areas of Arkansas. (December 1976) Owner: Federal

CALIFORNIA (34)

Amador County

BLACK CHASM CAVE — One mile south-southeast of Volcano. A small three-level cave containing an outstanding variety of speleothems and some of the best helictite formations in the West. (January 1976) Owner: Private

Contra Costa County

***MT. DIABLO STATE PARK** — 31 miles east of Berkeley. Contains the best examples of diapiric (igneous intrusion) geologic processes in the South Pacific Border natural region. One of the few places in the region where geologic strata of Jurassic, Cretaceous, and Tertiary age can be seen in an aggregate thickness of 42,000 feet. The park also possesses a great diversity of native plant species and associations. (May 1982) Owner: State

El Dorado County

***EMERALD BAY** — 16 miles south of Tahoe City. A vividly colored oval embayment of Lake Tahoe formed by moraines left as parallel glaciers receded. An outstanding example of glacial geology. (October 1968) Owner: State

Imperial County

ANZA-BORREGO DESERT STATE PARK — (see San Diego County)

***IMPERIAL SAND HILLS** — 15 miles west of Yuma, Arizona. One of the largest dune patches in the United States. An outstanding example of dune geology and ecology in an arid land. (October 1986) Owner: Federal, Private

SAN FELIPE CREEK AREA — 18 miles northwest of Westmoreland. Marsh area containing probably the last remaining perennial natural desert stream in the Colorado Desert. (May 1974) Owner: Federal, Private

CALIFORNIA

Inyo County

***DEEP SPRINGS MARSH**	20 miles southeast of Bishop. Possibly the only habitat for the black toad and an example of increasingly rare desert marsh. (May 1975) Owner: Private
***EUREKA DUNES**	Southern part of Eureka Valley, northwest of Death Valley National Monument. Excellent example of dunes in the Great Basin Natural Region of the United States. Contains a grass genus listed as endangered and the only species' capable of surviving on and stabilizing the steep dune slopes. (June 1983) Owner: Federal
FISH SLOUGH	(extends into Mono County)--Eight miles north of Bishop. Large, essentially undisturbed desert wetland with rare or endangered desert wildlife which provides habitat for one native and several introduced endangered species. (May 1975) Owner: Federal, State, Municipal, Private

Kern County

SAND RIDGE WILDFLOWER PRESERVE	Located 10 miles southeast of Bakersfield. It is significant due to its botanical diversity. Native Bakersfield cactus is becoming increasingly rare in this locality. The site is a remnant natural area displaying scores of spectacular floral species. (December 1984) Owner: Private
SHARKTOOTH HILL	One of the most abundant, diverse and well-preserved fossil marine vertebrate sites in the world. (May 1976) Owner: Private

Los Angeles County

***RANCHO LA BREA**	Hancock Park, Wilshire Boulevard, Los Angeles. World-famous natural asphalt tar pits in which Pleistocene animals became entrapped in their quest for fresh water. (March 1964) Owner: Municipal

Marin County

***AUDUBON CANYON RANCH**	20 miles northeast of San Francisco. Largest known nesting area for great blue herons and habitat for American egrets on the West Coast. (October 1968) Owner: Private

CALIFORNIA

Mendocino County

***ELDER CREEK**	Four miles north of Branscomb. Largely undisturbed and containing large old stands of Douglas fir, broadleaf evergreens, and deciduous trees as well as wide variety of wildlife. (March 1964) Owner: Private
***PYGMY FOREST**	Five miles south of Fort Bragg. Unique forests of low, stunted trees and shrubs caused by complex ecological conditions associated with underlying wave terraces and their unusual soils. (June 1969, November 1973) Owner: State

Mono County

FISH SLOUGH	(see Inyo County)

Monterey County

***POINT LOBOS**	Ten miles south of Monterey. An outstanding example of terrestrial and marine environments in close association, the only known habitat of Monterey cypress and variegated Brodiaea, and one of only two or three areas containing the Gowan's cypress and sea otter. It is a sanctuary for thousands of sea and shore birds. (April 1967) Owner: State

Riverside County

ANZA-BORREGO DESERT PARK	(see San Diego County)

Sacramento County

AMERICAN RIVER BLUFFS AND PHOENIX PARK VERNAL POOLS	Near Fair Oaks. Contains outstanding examples of rare plant community types--the blue oak woodlands and vernal pools. (January 1976) Owner: Federal, County, Private

CALIFORNIA

COSUMNES RIVER RIPARIAN WOODLANDS	Southeast of Sacramento. Small remnant of a rapidly disappearing riparian woodland community type that once formed a major part of the California Central Valley. (January 1976) Owner: Private
San Benito County	
***SAN ANDREAS**	Eight miles south of Hollister. One of the best locations illustrating earth displacement caused by small crustal movements is at the Cienega Winery where one-half of a building has moved eight inches in nine years. (April 1965) Owner: Private
San Bernardino County	
AMBOY CRATER	Just west of the town of Amboy. Excellent example of a recent volcanic cinder cone with an unusually flat crater floor. (May 1973) Owner: Federal, Private
CINDER CONE NATURAL AREA	24 miles east of Baker. A complex of over 20 large cinder cones of recent origin with extensive and continuous lava flows. (May 1973) Owner: Federal,State
***MITCHELL CAVERN AND WINDING STAIR CAVE**	23 miles northwest of Essex. Most important solution caverns known in the Mohave Desert region developed in the Bird Spring Formation of Permian age. Other caves are located within the landmark boundary. (May 1975) Owner: State
***RAINBOW BASIN**	Eight miles north of Barstow. Contains significant fossil evidence of insects, larger Micoene mammals and mammal tracks, as well as deep erosion canyons with rugged rims. An outstanding example of geologic processes. (April 1966) Owner: Federal

CALIFORNIA

***TRONA PINNACLES**	Seven miles south of Argus. Relict landform from Pleistocene containing unique formations of calcium carbonate known as "Tufa". (November 1967) Owner: Federal
TURTLE MOUNTAINS NATURAL AREA	30 miles south-southwest of Needles. Two mountain sections entirely different in composition which illustrate past volcanic phenomena with superimposed sculpturing of mountain landformations by weathering and uplift. (May 1973) Owner: Federal, State

San Diego County

ANZA-BORREGO DESERT STATE PARK	(extends into Imperial and Riverside Counties)--Almost all of this site is in eastern San Diego County. Largest desert State park in the Nation, it contains some of the best examples of the various desert biotic communities in the Colorado Desert and excellent examples of desert geological phenomena. (May 1974) Owner: State, Municipal, Private
***MIRAMAR MOUNDS**	12 miles north of central San Diego. This area includes features called "mima mounds" which are found in only three or four locations in the country. Contains rare vernal pools found only in California. (June 1972) Owner: Federal
TIJUANA RIVER ESTUARY	Between the city of Imperial Beach and the United States-Mexican International Boundary. One of the finest remaining saltwater marshes on the California coastline, containing three species of endangered birds and an important habitat for other wildlife, especially waterfowl. (May 1973) Owner: Federal, State, Municipal, Private
***TORREY PINES STATE RESERVE**	Along the northwestern edge of San Diego city limits. Unique and undisturbed biological community supporting endangered bird species. Torrey pine forests occur naturally only here and on Santa Rosa Island, 175 miles to the northwest. High bluffs and sea cliffs are examples of geological processes. (May 1977) Owner: State

CALIFORNIA

San Luis Obispo County

NIPOMO DUNES-POINT SAL COASTAL AREA	(extends into Santa Barbara County)--Extends from Pismo Beach south for 17 miles. Contains the largest, relatively undisturbed coastal dune tract in California, supporting both rare and endangered plants and animals and great species diversity. Also contains one of the last remaining tracts of pristine rocky coastline in the South Coast Ranges. (May 1974) Owner: Federal, State, County, Private

San Mateo County

***ANO NUEVO POINT AND ISLAND**	20 miles north of Santa Cruz. The only mainland breeding ground for the northern elephant seal in the world; also habitat for Steller sea lions, California sea lions, and harbor seals. The processes of wave cutting, geologic uplift, and sea level fluctuation are well represented along Ano Nuevo Point. (August 1980) Owner: State

Santa Barbara County

NIPOMO DUNES-POINT SAL COASTAL AREA	(see San Diego County)

Shasta County

BURNEY FALLS	80 miles northeast of Redding within the McArthur-Burney Falls State Park. It is one of the best examples in the western United States of river drainage regulated by stratigraphically-controlled springs, and also of a waterfall formed by undercutting of horizontal rock layers. (December 1984) Owner: State

Siskiyou County

***MOUNT SHASTA**	60 miles north of Redding. One of the world's largest and most impressive stratovolcanoes containing five glaciers and consisting of four distinct but overlapping cones. Second highest of the 15 main volcanoes in the Cascade Range; only Mt. Rainier is higher. (December 1976) Owner: Federal

CALIFORNIA

Solano County

DIXON VERNAL POOLS	This 15,200 acre site, located approximately 15 miles south of Dixon, represents the best example of the Valley Needlegrass Grassland in the Great Central Valley of the South Pacific Border Natural Region. There are only three sites of Valley Needlegrass Grassland remaining today. The site contains extensive stands of perennial needlegrass in a mosiac with claypan vernal pools, another critically rare natural community. The rolling hummocky topography results in a complex patchwork of grasses and native wildflowers. (May 1967) Owner: Private

Tulare County

***PIXLEY VERNAL POOLS**	Six miles northeast of Pixley. One group of the few remaining natural vernal pools containing certain endemic plant species. Over 26 families and 100 species are represented here. (November 1975) Owner: Private

COLORADO (11)

Clear Creek County

*SUMMIT LAKE	13 miles south-southwest of Idaho Springs. Habitat for a variety of rare alpine-arctic plants, some of which occur only here and at the Arctic Circle. (April 1965) Owner: County, Municipal

Douglas County

*ROXBOROUGH STATE PARK	20 miles southwest of Denver. Excellent example of the tilted and faulted sedimentary strata of the Colorado Front Range environment; contains fine exposures of hogbacks, unusual erosional patterns in Fountain Sandstone, and atypical occurrences of at least two front-range plant communities. (April 1980) Owner: State

El Paso County

*GARDEN OF THE GODS	Ten miles northeast of Pikes Peak. Outstanding illustration of the results of uplifting forces that produced the Front Range of the Rocky Mountains to the west, containing uncommon honey ants, and one of the best Colorado habitats for white-throated swifts, swallows, and canyon wrens. (October 1971) Owner: Municipal

Fremont County

GARDEN PARK FOSSIL AREA	One of the oldest and richest sites containing dinosaur, fish, crocodile, turtle, and mammal fossils in the United States. (November 1973) Owner: Federal
*INDIAN SPRINGS TRACE FOSSIL SITE	Best trace fossil locality in North America for illustrating the markings and movements of ancient Ordovician animal life. (March 1979) Owner: Private

Hinsdale County

SLUMGUILLION EARTHFLOW	Two miles south of Lake City. Seven-hundred-year-old, 1,000-acre landflow composed of volcanic rock which formed a dam that created Lake San Cristobal. A younger landflow, currently active,, is moving as much as 20 feet per year along the path of the earlier flow. (October 1965) Owner: Federal, Private

COLORADO

Huerfano County

SPANISH PEAKS — (extends into Las Animas County)--25 miles southwest of Walsenburg. One of the best exposed examples of igneous dikes known; dikes are formed when molten igneous material is forced into a fracture or fault before becoming solidified. There may be over 500 such dikes in the area. (January 1976) Owner: Federal, Private

Jefferson County

MORRISON FOSSIL AREA — Just north of Morrison. First major site for discovery, in 1877, of giant dinosaur fossil bones, seven of which were newly discovered species. (December 1973) Owner: Municipal, Private

Las Animas County

RATON MESA — Ten miles south of Trinidad. Illustration of a mesa preserved by a thick lava cap which has resisted destruction from weathering and erosion. Only significant reference available illustrating the magnitude of erosion involved in developing the land surface of the Great Plains adjacent to the lower foothills of the Rocky Mountains. (April 1967) Owner: Private

Park County

***LOST CREEK SCENIC AREA** — 40 miles southwest of Denver. Illustrates structure of land through weathering along joint planes, and contains spires, pinnacles, narrow ridges and steep narrow gorges. Lost Creek disappears and reappears at the surface at least nine times. (October 1966)

Saguache County

RUSSELL LAKES — Ten miles south of Saguache. The most extensive bullrush marsh in Colorado, this area contains a number of shallow, largely alkaline lakes and supports large numbers of flora and fauna. The area is also an outstanding resting and breeding habitat for waterfowl. (May 1975) Owner: Private

CONNECTICUT (8)

Hartford County

***DINOSAUR TRACKWAY**	Five miles south of Hartford. One of the largest known exposures of dinosaur tracks on a single bedding plane. From some 1,000 fossilized tracks, at least three types of reptiles have been identified. (April 1968) Owner: State
***MCLEAN GAME REFUGE NATURAL AREA**	Four miles north northwest of Simsbury. Two separate land tracts representing an excellent forest in southern New England, containing evidence of glacial activity and considerable species diversity. (November 1973) Owner: Private

Litchfield County

***BARTHOLOMEW'S COBBLE**	(extends into Berkshire County, Massachusetts)--One mile west of Ashley Falls, Massachusetts. Greatest natural concentration of ferns in the United States, containing 43 fern species and a remarkable assemblage of plants and animals. (October 1971) Owner: Private
***BECKLEY BOG**	Two and one-half miles southeast of Norfolk. The most southerly sphagnum-heath-black spruce bog in New England where peat moss underlies the bog up to a maximum depth of 51 feet. (May 1977) Owner: Private
BINGHAM POND BOG	One mile east of the New York State boundary. Extremely rare in Connecticut, here is an undisturbed cold northern spruce bog which is atypical due to the lack of sphagnum moss as a component of the floating mat on the bog. (May 1973) Owner: Private
***CATHEDRAL PINES**	Near the southeast corner of Cornwall in the Berkshire Hills region. An old-growth white pine and hemlock forest which is the most massive single stand identified in the New England-Adirondacks natural region. (May 1982) Owner: Private

CONNECTICUT

Middlesex County

CHESTER CEDAR SWAMP

Two miles west-southwest of Chester. One of two finest remaining Atlantic white cedar swamps in Connecticut and an outstanding second-growth wooded swampland containing a small elongated pond with its adjacent bogland and some upland forest. (May 1973) Owner: State, Private

New London County

PACHAUG-GREAT MEADOW SWAMP

One and one-half miles northeast of Voluntown. Most extensive Atlantic white cedar swamp in Connecticut, and one of the two best, the area includes the Pachaug River and the Great Meadow Brook. (May 1973) Owner: State, Private

FLORIDA (18)

Alachua County

*DEVIL'S MILLHOPPER	Six miles northwest of Gainesville. An excellent example of karst topography in the Southeast and an important cultural and historic site in the Alachua area. The generally dry sink is an example of several ecosystems with many microhabitats and major plant associations which demonstrate vertical zonation (December 1974) Owner: State
PAYNES PRAIRIE	Southern edge of Gainesville. Largest and most diverse freshwater marsh in northern Florida and a major wintering ground for many species of waterfowl as well as habitat for other wildlife, including two endangered species. A superlative example of prairie formation in a karst area; contains the Alachua Sink, one of Florida's largest and most famous sinks. (December 1974) Owner: State, Private
SAN FELASCO HAMMOCK	The center of the site is nine miles northwest of Gainesville. Largest remaining example of northern Florida's climax forest ecosystem, the upland mesic hammock, containing an extraordinary diversity of botanical resources supporting high quality woodland wildlife habitat. (December 1974) Owner: State, Private

Baker County

*OSCEOLA RESEARCH NATURAL AREA	29 miles northeast of Lake City. Includes an undistributed mixed hardwood swamp with associated pine flatwoods and cypress swamp. The flatwoods are excellent wildlife habitat, and the presence of virgin cypress is a rare feature. (December 1974) Owner: Federal

Collier County

*BIG CYPRESS BEND	One mile west of State Route 29 on Tamiami Trail (U.S. 41). Includes about 215 acres of undisturbed virgin cypress, sawgrass prairie and palmetto hammocks. (October 1966) Owner: State

FLORIDA

***CORKSCREW SWAMP SANCTUARY**	25 miles southeast of Fort Myers. Largest remaining stand of virgin bald cypress in North America, containing a wide variety of flora, including pond cypress, wet prairie and pineland, and sanctuary for a large wildlife population. (March 1964) Owner: Private
Columbia County	
***ICHETUCKNEE SPRINGS**	(extends into Suwanee County)--Ichetucknee Springs State Park, 22 miles southwest of Lake City. Illustration of a large artesian spring group and the geologic history of the Floridian aquifer from which Florida's great springs emanate, and containing abandoned relict channels ancestral to the present underground solution channels. (October 1971) Owner: State
Highlands County	
ARCHIBOLD BIOLOGICAL STATION	This 4,250-acre, located approximately 7 miles south of Lake Placid, encompasses the largest known tract of contiguous natural communities characteristics of the Lakes Wales Ridge still in a relatively natural condition. The full range of moisture conditions (xeric-mesic-hydric), and most stages of plant succession, are represented by high quality examples. Lake Annie is the highest quality water supply left in the system of valley sink lakes that extends northward from the Station. A large number of endemic and rare species of plants and animals are located here. (May 1987) Owner: Private
Jackson County	
***FLORIDA CAVERNS NATURAL AREA**	Two miles north of Marianna. Unique disjunct relict community from a former temperate hardwood forest which has remained intact and isolated since the end of the Wisconsin glacial period and probably longer. The cave harbors three species of bats, including the Indiana bat, an endangered species, which uses the cave for winter hibernation. (December 1976) Owner: State

FLORIDA

Lake County

EMERALDA MARSH	(extends into Marion County)--Ten miles northeast of Leesburg. Virtually undisturbed inland freshwater riverine sawgrass marsh supporting several species of waterfowl, and including endangered and threatened species. Also provides an important fishery. (December 1974) Owner: Private

Levy County

***MANATEE SPRINGS**	Manatee Springs State Park, 50 miles west-southwest of Gainesville. Ranks about sixth in size among the great artesian springs of Florida in close proximity to karst sinkholes, with proven underground connections with the headspring, and connecting with the Suwanee River. (October 1971) Owner: State
***WACCASASSA BAY STATE PRESERVE**	40 miles west of Ocala. Example of northern Florida coastal ecosystem, including transition from mangrove to salt marsh to brackish marsh to freshwater marsh along the Waccasassa River and habitat for at least three endangered species. (December 1976) Owner: State

Liberty County

***TORREYA STATE PARK**	12 miles north of Bristol along the Apalachicola River. Very significant relict habitat for ancient flora, including stinkingcedar, Florida yew and Croomia, which are descendants of the Arcto-Tertiary Geoflora which existed some 63 million years ago. (December 1976) Owner: State

Marion County

EMERALDA MARSH	(see Lake County)

FLORIDA

***RAINBOW SPRINGS**	Four miles north-northeast of Dunnellon. Second of Florida's great artesian springs on the basis of its rate of discharge, and first as a single outlet spring, with glass-bottom cruise boats for observing spring cavities and aquatic life. (October 1971) Owner: Private
***SILVER SPRINGS**	Five miles northeast of Ocala. Largest spring group in the United States, with glass-bottom boat rides. (October 1971) Owner: Private
<u>Martin County</u>	
***REED WILDERNESS SEASHORE SANCTUARY**	Eight miles south of Stuart. Unaltered east coast of Florida seashore, including semitropical plant associations of mangrove swamps, coastal strand and shell mound types, encompassing northern portion of Jupiter Island and providing increasingly rare nesting site for Atlantic Loggerhead turtles. (November 1967) Owner: Federal
<u>Monroe County</u>	
***LIGNUMVITAE KEY**	One-half mile north of the U.S. 1 causeway near the northern end of Matecumbe Key. One of the highest keys in the Florida Keys chain providing a wide range of habitat, from wave-washed exposures of Key Largo limestone to mangrove swamp. Most vegetation is tropical hammock forest, which is the largest and best example of the type known in the United States. (October 1968) Owner: State
<u>Suwanee County</u>	
***ICHETUCKNEE SPRINGS**	(see Columbia County)
<u>Wakulla Springs</u>	
***WAKULLA SPRINGS**	15 miles south of Tallahassee. An independent freshwater ecosystem and one of the largest and deepest springs in FLorida. Rich in aquatic vegetation, fish, turtles, alligators, and birds, lined with huge cypress trees and a well-developed hardwood hammock containing significant fossils. (October 1966) Owner: Private

GEORGIA (12)

Bartow County

SAG PONDS NATURAL AREA	Five miles southeast of Adairsville. The six ponds illustrate the various stages of ecological succession. Unique for their combination of dissimilar vegetation, and containing relict flora persisting from the Pleistocene and significant fossils. (May 1974) Owner: Private

Charlton County

***OKEFENOKEE SWAMP**	(extends into Clinch and Ware Counties)-- Okefenokee National Wildlife Refuge, the center of the site is 28 miles south of Waycross. Largest and most primitive swamp in the country containing a diversity of ecosystems, and a refuge for native flora and fauna including many uncommon, threatened and endangered species. (December 1974) Owner: Federal

Chatham County

***WASSAW ISLAND**	14 miles south of Savannah, in the Atlantic Ocean. Only island of Golden Isles with an undisturbed forest cover and one of the few remaining examples of the sea-island ecosystem with a high degree of integrity, illustrating the building of the island from the sands of the Coastal Plain, and supporting a wide array of unusual animals. (April 1967) Owner: Federal, Private

Clinch County

***OKEFENOKEE SWAMP**	(see Charlton County)

Columbia County

HEGGIE'S ROCK	17 miles northwest of Augusta. An undisturbed example of the characteristic plant species, community zonation, and successional stages occurring on well-exposed granitic outcrops. (August 1980) Owner: Private

GEORGIA

Effingham County

EBENEZER CREEK SWAMP	The center of the site is 22 miles north-northwest of Savannah. Best remaining cypress-gum swamp forest in the Savannah River Basin illustrating the relationship and interactions between river and creek, and providing spawning grounds for the anadromous striped bass and habitat for the American alligator. (May 1976) Owner: Private

Emanuel County

***CAMP E. F.BOYD NATURAL AREA**	Eight miles southwest of Swainsboro. Representative of rapidly disappearing flood plain--upland sand ridge ecosystem of the Coastal Plain and habitat for several rare plants and endangered species. (May 1974) Owner: Private

Floyd County

***MARSHALL FOREST**	Near Rome. Loblolly pine-shortleaf pine forest believed to have originated following an intense fire at about the time the Cherokee Indians were forcibly removed to Oklahoma. Forest has a ten-acre stand of virgin yellow poplar. (May 1966) Owner: Private

Harris County

***CARSON J. CALLAWAY MEMORIAL FOREST**	One mile west of Hamilton. Outstanding example of transitional conditions between eastern deciduous and southern coniferous forest types, containing the entire Barnes Creek watershed and an unpolluted stream system. (June 1972) Owner: Private

McIntosh County

***LEWIS ISLAND TRACT**	Eight miles west-northwest of Darien. One of the most extensive bottomland hardwood swamps in Georgia, containing stands of virgin bald cypress and associated swamp hardwood species, and supporting uncommon wildlife species. (May 1974) Owner: State

GEORGIA

Rockdale County

*PANOLA MOUNTAIN	15 miles southeast of Atlanta. The most natural and undisturbed monadnock of exposed granitic rock in the Piedmont region. The area supports a variety of plant communities. (August 1980) Owner: State

Seminole County

SPOONER SPRINGS	14 miles west of Bainbridge. One of the largest and least disturbed sinkhole wetlands in Georgia, supporting an abundance of American alligators. (May 1974) Owner: Private

Tattnall County

*BIG HAMMOCK NATURAL AREA	Ten miles southwest of Glennville. Contains relatively undisturbed broadleaf evergreen hammock forest and includes rare and endangered species. (May 1976) Owner: State

Ware County

*OKEFENOKEE SWAMP	(see Charlton County)

GUAM (4)

***FACPI POINT**	On the southwestern coast of Guam. Site contains pillow lavas, intersecting dikes, and a massive seastack of black coralline limestone. An illustration of the major episode of volcanism which created Guam Island. (November 1972) Owner: Government of Guam
***FOUHA POINT**	On the southwestern coast of Guam, one mile northwest of the village of Umatac. Contains exposures of volcanic rock with a nearby intertidal platform of two levels of coralline limestone. (November 1972) Owner: Government of Guam
***MOUNT LAMLAM**	Three miles north-northwest of Umatac. Remnant of a great caldera, it is the third key site on Guam disclosing the major volcanism which created the island. (November 1972) Owner: Federal, Government of Guam
***PUNTAN DOS AMANTES**	Two miles north of Tumon. Illustrates the limestone deposition and subsequent subterranean erosion phases of Guam's geologic history. The area contains a 370-foot high cliff exposure of massive limestone. (November 1972) Owner: Government of Guam

HAWAII (7)

Island of Hawaii

MAKALAWENA MARSH	Near Kawikahala Point. One of two remaining ponds in Hawaii that support a resident population of the endangered, non-migratory Hawaiian stilt, nesting site of the Hawaiian coot, and the only known breeding site of the black-crowned night heron on the Island of Hawaii. (June 1972) Owner: Private
MAUNA KEA	25 miles west-northwest of the city of Hilo. Exposed portion of the highest insular mountain in the United States, containing the highest lake in the country and evidence of glaciation above the 11,000-foot level. Most majestic expression of shield volcanism in the Hawaiian Archipelago, if not the world. (November 1972) Owner: State

Island of Maui

IAO VALLEY	West of the city of Wailuku. Valley and volcanic rocks on its enclosing slopes illustrate the major episode of volcanism which created the western portion of the island. Amphitheater shape is due to erosion on the volcanic rocks of a great caldera. (November 1972) Owner: State, Private
*KANAHA POND	One mile west of Kahului Airport. Most important waterbird in Hawaii, and one of the few remaining habitat brackish-water ecosystems providing refuge for both resident and migratory bird populations. (June 1971) Owner: State

Island of Molokai

NORTH SHORE CLIFFS	Between the villages of Halawa and Kalaupapa. Finest exposures of ancient volcanic rocks resulting from the major episode of volcanism creating Molokai, among the most ancient in the Hawaiian Island chain. (November 1972) Owner: State, Private

Island of Oahu

*DIAMOND HEAD	In the city of Honolulu. One of the best exposed and preserved examples of a typical volcanic cone of altered basaltic glass. Shows the bedding structure of the cone and the character of the rock. (February 1968) Owner: Federal, State

HAWAII

KOOLAU RANGE PALI

Three miles south of Kaneohe. The Pali is to the Island of Oahu what the Great Western Divide is to Sequoia National Park. Faulting and stream erosion are among the principal processes which give the cliffs their configuration. (November 1972) Owner: Private

IDAHO (..)

Adams County

***SHEEP ROCK**	In Payette National Forest, 35 miles northwest of Council and two miles east of the Snake River. Provides the best view of the horizontally layered lavas that represent successive flows on the Columbia River Basalt Plateau, and an unobstructed view of two contrasting series of volcanic rocks separated by a major unconformity--an important geologic phenomenon. (December 1976) Owner: Federal

Bingham County

HELL'S HALF ACRE LAVA FIELD	(extends into Bonneville County)--The center o f the site is 20 miles west of Idaho Falls. A complete, young, unweathered, fully exposed pahoehoe lava flow and an outstanding example of pioneer vegetation establishing itself on a lava flow. (January 1976) Owner: Federal, State

Blaine County

***GREAT RIFT SYSTEM**	(extends into Minidoka and Power Counties)--43 miles northwest of Pocatello. As a tensional fracture in the Earth's crust that may extend to the crust-mantle interface, the Great Rift System is unique in North America and has few counterparts in the world. It also illustrates primary vegetation succession on very young lava flows. (April 1968) Owner: Federal

Bonneville County

HELL'S HALF ACRE LAVA FIELD	(see Bingham County)

Butte County

***BIG SOUTHERN BUTTE**	37 miles northwest of Blackfoot. The view from this butte illustrates the scope and dimensions of Quaternary volcanism in the western United States and the largest area of volcanic rocks of young age in the United States. (January 1976) Owner: Federal

IDAHO

Cassia County

CASSIA SILENT CITY OF ROCKS	16 miles southeast of Oakley. Contains monolithic landforms created by exfoliation processes on exposed massive granite plutons, and the best example of bornhardts in the country. (May 1974) Owner: Federal, State, Private

Elmore County

CRATER RINGS	Two adjacent and symmetrical pit craters that are among the few examples of this type of crater in the continental United States. The pit craters, which are volcanic conduits in which the lava column rises and falls were formed by explosions followed by collapse. (April 1980) Owner: Federal

Fremont County

BIG SPRINGS	54 miles northeast of Rexburg. The only first-magnitude spring in the county which issues forth from rhyolitic lava flows. It is the source of the South Fork of the Henrys Fork River. (August 1980) Owner: Federal

Gooding County

NIAGARA SPRINGS	20 miles west of Twin Falls. The least developed of the large springs discharging into the Snake River from the Snake River Plain aquifer system. It is outstandingly illustrative of the enormous volume of water transmitted through this aquifer. (April 1980) Owner: Private

Jefferson County

MENAN BUTTES	(extends into Madison County--Ten miles west of Rexburg. Contains outstanding examples of glass tuff cones, which are found in only a few places in the world. Their large size and unusual composition make them particularly instructive of an unusual aspect of basaltic volcanism. (April 1980) Owner: Federal, Private

Madison County

MENAN BUTTES	(see Jefferson County)

IDAHO

Shoshone County

HOBO CEDAR GROVE BOTANICAL AREA	12 miles northeast of Clarkia. An outstanding example of pristine western red cedar forest. Two communities are represented: cedar/Oregon boxwood on the uplands and cedar/fern on the lowlands. (April 1980) Owner: Federal

Twin Falls County

HAGERMAN FAUNA SITES	West and southwest of Hagerman. Contains the world's richest deposits of Upper Pliocene age terrestrial fossils, therefore considered to be of international significance. (May 1975) Owner: Federal, State

ILLINOIS (18)

Alexander County

***HORSESHORE LAKE NATURAL PRESERVE**	11 miles northwest of Cairo. Contains diverse aquatic and terrestrial flora and fauna and mature stands of bald cypress. The site is on the migration corridor of many waterfowl, as well as being an overwintering site for thousands of Canada geese. (November 1972) Owner: State

Carroll County

***MISSISSIPPI PALISADES**	North of Savanna. Topography containing deep V-shaped valleys, caves and sinks, massive cliffs along the Mississippi River, and supporting numerous species of plant and animal life. (November 1972) State

Cook County

***BUSSE FOREST NATURAL PRESERVE**	23 miles northwest of Chicago. Situated on the flood plain and morainal uplands along Salt Creek. One of the best remaining examples of mesic and dry-mesic upland forest in the Eastern Central Lowlands. The area has been protected for so long that there is no evidence of past logging throughout most of the site. (February 1980) Owner: County
***MARKHAM PRAIRIE**	Located in the town of Markham about 20 miles south of the Loop is a 190-acre site representing the largest and highest quality prairie in Illinois and in large parts of adjacent states. As a mesic prairie intergrading between sand prairie and typical tall-grass prairie on loamy soil, it is a remnant of a distinct and formerly widespread biotic community type of the Central Lowlands Natural Region. Mesic prairie has been nearly eliminated along the south edge of Lake Michigan where most remnants occur. In the Chicago Lake Plain of Illinois, for example, only about one-hundredth of one percent remain of the original prairie. Much of it occurs within a nature preserve, located close to a very large metropolitan area, surrounded by suburban development. The site is also an excellent example of undeveloped lakebed and beach ridge topography. (November 1987) Owner: Private

ILLINOIS

Jackson County

LITTLE GRAND CANYON AREA

Ten miles west of Carbondale. Exceptional example of a large box canyon with vertical overhanging walls. Contains a great diversity of ecosystems, including sandstone outcrops and overhangs, ravine slope forest, dry site oak-hickory forest, and hill prairies. The ravine is nationally known as a seasonal haven for a great variety of snakes that hibernate there. (February 1980) Owner: Federal

Johnson County

LOWER CACHE RIVER SWAMP

(extends into Pulaski County)--32 miles south-southeast of Carbondale. Outstanding remnant of the swampy flood plain forest and open swamp that once covered an extensive area at the junction of the Mississippi and Ohio River valleys. Has many large trees including three larger than any on record for the species in the nation. (February 1980) Owner: State, Private

***HERON POND-LITTLE BLACK SLOUGH NATURE AREA**

25 miles south of Marion. This is the largest remaining cypress-tupelo swamp in Illinois. The site contains a heron rookery and the valley is an outstanding example of alluvial, colluvial, and lacustrine sedimentation within an entrenched meandering valley system. (November 1972, February 1980) Owner: State, Private

Lake County

***ILLINOIS BEACH NATURAL PRESERVE**

Illinois Beach State Park, three miles north-northeast of Waukegan. An area of beach ridges that supports a great diversity of natural communities, including savanna, sand prairie, wetland, and beach communities. Area supports over 60 species of animals and plants that are threatened or endangered in Illinois. (February 1980) Owner: Private

***VOLO BOG NATURE PRESERVE**

One and one-half miles north-northwest of Volo. This type of site is rare for Illinois. It contains many unusual or rare plants which are characteristic of the classic northern quaking bog. (November 1972) Owner: State

ILLINOIS

*WAUCONDA BOG NATURAL PRESERVE	On the southern edge of the village of Wauconda. Mature bog that contains the farthest southern extension of bog vegetation in Illinois, representing an unusual biotic community in that region. (November 1972) Owner: State
McLean County	
*FUNKS GROVE	11 miles southwest of Bloomington. Rare example of virgin forests once isolated on the prairies of the Midwest, illustrating a transition between oak-hickory association of the region and the western mesophytic association to the east. (May 1974) Owner: State, Private
Monroe County	
*FULTS HILL PRAIRIE NATURE PRESERVE	This 498 acre site is located approximately 35 miles south of St. Louis, Missouri, and contains the largest complex (33 acres or 34%) of the highest quality, essentially undisturbed loess hill prairies along the Mississippi River in Illinois, including the largest single prairie opening (11 acres). (May 1986) Owner: State
Piatt County	
*ALLERTON NATURAL AREA	28 miles southwest of Champaign. Example of rapidly disappearing Illinois stream valley ecosystem containing relatively undisturbed examples of bottomland and upland forests. (January 1970) Owner: State
Pope County	
BELL SMITH SPRINGS	Shawnee National Forest. Fragile area containing some of the best examples of ecosystems typical of sharply dissected sandstone substrates. Also contains fine examples of landforms created by stream erosion and mass wasting. (February 1980) Owner: Federal
LUSK CREEK CANYON	15 miles south of Harrisburg. Excellent example of a gorge-like valley formed by mass wasting and stream erosion in lower Pennsylvanian sandstones. Also contains good examples two major forest ecosystems; 10 endangered or threatened Illinois plant species occur here. (February 1980) Owner: Federal, State

ILLINOIS

Pulaski County

LOWER CACHE RIVER SWAMP	(see Johnson County)

Union County

***GIANT CITY ECOLOGICAL AREA**	Giant City State Park, 36 miles southwest of Harrisburg. Exceptional example of gravity sliding consisting of massive joint-bounded sandstone blocks of Pennsylvanian Age. Rich flora include xeric oak woods, oak-hickory and mesic forests dominated by sugar maple. (February 1980) Owner: State
***LARUE-PINE HILLS ECOLOGICAL AREA**	Shawnee National Forest. The center of the site is four miles north of Wolf Lake. The area contains one of the finest assemblages of diverse vegetation in the Midwest, representing species of northern, southern, eastern, and western affinities, including 40 species rare in Illinois. (May 1974) Owner: Federal, State, Private

Wabash County

***FOREST OF THE WABASH**	Beall Woods Nature Preserve, three miles south of Mount Carmel. Essentially undisturbed upland and bottomland forests lying along the Wabash River. The upland stands are probably the finest remaining oak-hickory forest in this part of the country. (October 1965) Owner: State

INDIANA (30)

Crawford County

MARENGO CAVE	Textbook example of a cave in its middle stage of development. It is the most profusely decorated cave known in the Interior Lowlands with cave features of the highest quality. This cave is the location where five organisms were first identified. It has had an extensive and continuous history of research, as well as protective custody over the last century. (December 1984) Owner: Private
*WYANDOTTE CAVE	Harrison-Crawford State Forest, 30 miles west of New Albany. The cave has 23 miles of explored passageways, vertical relief encompassing several levels, huge rooms, gigantic domepits, rubble breakdown and stalagmites. It is one of the great cave systems within the karst region of the east-central United States. (June 1972) Owner: State

Fayette County

*SHRADER-WEAVER WOODS	Seven miles northwest of Connersville. Outstanding presettlement beech-maple forest containing unusually large trees, such as a 56-inch diameter breast high (d.b.h.) burr oak and a 34-inch d.b.h. black maple. (May 1974) Owner: State

Floyd County

OHIO CORAL REEF (FALLS OF THE OHIO)	(extends into Jefferson County, Kentucky--In the Ohio River between Jeffersonville, Indiana, and Louisville, Kentucky. Classic example of a Silurian and Devonian coral community from which nearly 900 nominal species have been founded on specimens collected here. The lower part of Jeffersonville limestone is composed of corals, matrix, and little else. (October 1966) Owner: State

Fountain County

*PORTLAND AND ARCH NATURE PRESERVE	Seven miles northeast of Covington. Contains massive crossbedded sandstone cliffs and a 7 1/2-foot high natural bridge. Has many plant species unknown elsewhere in the State; some are relicts occurring here due to the unusual climate created by the canyon. (May 1973) Owner: State

INDIANA

Gibson County

HEMMER WOODS — Two miles northeast of Buckskin. Illustrates the transition from lowland to upland forest, containing one of the best mixed lowland stands remaining in Indiana, the largest known specimens of tulip tree in the State, and a great abundance of wildflowers. (November 1973) Owner: State, Private

Harrison County

HARRISON SPRING — Fragile area that has been vandalized in the past and is now closed to the public. Largest spring in Indiana and one of the best examples of alluviated cave springs in the United States due to its location in an abandoned meander loop, and the natural levee around its periphery. (February 1980) Owner: Private

Jefferson County

OFFICER'S WOODS — Seven miles northwest of Madison. One of the finest remnants of beech-maple forest south of the Wisconsin-age glacial boundary in Indiana. Contains two stands which slightly different composition, one of which contains an exceptionally high density of black gum. (December 1974) Owner: Private

Lagrange County

***TAMARACK BOG NATURE PRESERVE** — Pigeon River State Game Preserve, one mile southeast of the town of Mongo. Contains the largest, well-developed tamarack swamp-bog forest in Indiana supporting six distinct vegetation types and more than 34 mammal species. Also supports water birds, amphibians and fishes. (November 1973) Owner: State

Lake County

***HOOSIER PRAIRIE** — Two miles southwest of Griffith. Last large tract of prairie near the eastern margin of the "Prairie Peninsula", containing a great diversity of community types. Almost 300 vascular plant species have been identified here. (May 1974) Owner: State

INDIANA

La Porte County

***PINHOOK BOG**

Indiana Dunes National Lakeshore, four miles south of Waterford. A living demonstration of the textbook description of ecological succession from pond to woodland, lying within a bowl-shaped depression likely to be a glacial kettle, and surrounded by wooded hills. (October 1965) Owner: Federal

Lawrence County

***DONALDSON CAVE SYSTEM AND WOODS**

Spring Mill State Park, five miles east of Mitchell. A tract containing 80 acres of prime virgin forest and a cave system associated with the Indiana karst region, including three separate units which are interconnected by underground passageways. (June 1972, November 1973) Owner: State

Montgomery County

***CALVERT AND PORTER WOODS NATURE PRESERVE (BECKVILLE WOODS)**

Three miles south of Shannondale. One of the finest near-virgin remnant forests in the Tipton Till Plain of central Indiana, containing a great diversity of tree species due to a pronounced moisture gradient producing different habitats, and a great blue heron rookery. (December 1974) Owner: Private

***PINE HILLS NATURAL AREA**

15 miles west-southwest of Crawfordsville. The tract is sharply dissected by deep, stream-carved canyons which have left narrow rock ridges or backbones, probably the most remarkable examples of incised meanders in the eastern United States. Contains a variety of habitats and a number of plant species considered to be Pleistocene relicts. (April 1968) Owner: State

Orange County

***PIONEER MOTHER'S MEMORIAL FOREST**

Hoosier National Forest, one mile southeast of Paoli. One of the best examples of an original, undisturbed presettlement forest in Indiana containing the finest examples of forest-grown walnut trees in America. (May 1974) Owner: Federal

***RISE AT ORANGEVILLE**

South of West Road in Orangeville. The State's second largest spring and the clearest illustration of subterranean stream resurgence in the famed Lost River karst area. (June 1972) Owner: Private

INDIANA

*TOLLIVER SWALLOWHOLE	Four miles north-northwest of Paoli. Extraordinary example of the disappearing stream aspect of karst topography. An elongated channel with a small opening at the bottom of the west of the channel that opens into a segment of underground Lost River. (June 1972) Owner: Private
*WESLEY CHAPEL GULF	Two miles southeast of Orangeville. The most significant and spectacular feature of the Lost River Basin, one of the world's great karst areas. Probably the largest sinkhole in Indiana and a classic illustration of a uvala (feature formed by the coalescence of series of sinkholes). (June 1972) Owner: Private
Owen County	
HOOT WOODS	Three miles northwest of Freedom. Relatively undisturbed, isolated beech-maple forest where near climax conditions prevail. (November 1973) Owner: Private
Parke County	
*ROCKY HOLLOW-FALLS CANYON NATURE PRESERVE	Turkey Run State Park, nine miles north of Rockville. Forest area containing virgin beech-maple stands, several steep sandstone gorges that harbor virgin boreal relict populations of eastern hemlock and Canada yew, and some of the largest black walnut in the Midwest. (December 1974) Owner: State
Porter County	
*COWLES BOG	Indiana Dunes National Lakeshore. 10 miles west of Michigan City. Illustrates marsh and bog, as well as transition to swamp, and includes flora common to these habitats. (October 1965) Owner: Federal
*DUNES NATURE PRESERVE	Indiana Dunes State Park, along the southeastern shore of Lake Michigan between Dune Acres and Beverly Shores. The best remaining example of undeveloped and relatively unspoiled dune landscape along the southern shore of Lake Michigan, a portion of which is known as the "Birthplace of American Ecology". Also contains Ancient Pines Nature Area, a prehistoric forest now exposed by dune blowouts. (December 1974) Owner: State

INDIANA

Putnam County

BIG WALNUT CREEK — 35 miles west of Indianapolis. A branch of the Eel river formed as a result of glacial melt and postglacial water erosion, the site contains one of the few stands in the State where beech, sugar maple and tulip poplar grow on alluvial Genesee soil. Includes relict species of a postglacial forest which occupied the area 5,000 to 6,000 years ago. (April 1968) Owner: State, Private

***FERN CLIFF** — Seven miles southwest of Greencastle. Contains exceptional occurrences of mosses and liverworts, including a noteworthy number of rare species. One of the best sites for bryophytes in the Central States. (February 1980) Owner: Private

Randolph County

CABIN CREEK RAISED BOG — 14 miles east-southeast of Muncie. A fen (alkaline bog) elevated some 10 feet above the general flood plain level of Cabin Creek, supporting very rich flora, including many species at or near their range limits. (December 1974) Owner: Private

***DAVIS-PURDUE AGRICULTURAL CENTER FOREST** — 13 miles northeast of Munice. Best old growth oak-hickory forest on the Tipton Till Plain and possibly one of the finest such forests in the eastern United States containing exceptionally large individuals of several tree species. (december 1974) Owner: State

Shelby County

***MELTZER WOODS** — Two miles southwest of Blue Ridge. A presettlement forest containing a juxtaposition of two contrasting forest types (beech-maple and lowland mixed forests) and exceptionally large individuals of several tree species. (November 1973) Owner: Private

Spencer County

***KRAMER WOODS** — One and none-half miles southwest of Patronville. This area is the only example of a umard's red oak-pin oak-hickory dominated stand of lowland mixed forest of any size in Indiana. (November 1973) Owner: State

INDIANA

Vanderburgh County

*WESSELMAN PARK WOODS	Within the city limits of Evansville. Presettlement lowland mixed forest with the highest basal area per acre of any known stand in Indiana, dominated by sweet gum-tulip tree (November 1973) Owner: Municipal

Wabash County

HANGING ROCK AND WABASH REEF	This area consists of two one-acre sites located along the south bank of the Wabash River. Both contain natural exposures of limestone reef deposits characteristic of Silurian rocks of the midwestern U. S., most of which are exposed only in quarries. Hanging Rock, located about 6 miles northeast of Wabash, is an impressive natural exposure of an exhumed reef that rises 75 feet above the Wabash River. The Wabash Reef, a smaller exposure along the Wabash Railroad in the northeastern portion of Wabash, is one of the best known fossil reefs in the world, because it has been the subject of numerous studies responsible for the development of modern reef theory. (May 1986) Owner: Private

IOWA (7)

Clay County

*DEWEY PASTURE AND SMITH'S SLOUGH	(extends into Palo Alto County)--Four miles north-northwest of Ruthven. Section of pothole lakes created during the last glacial epoch, containing considerable habitat diversity including wetlands, tallgrass prairie, and woodland supporting a significant waterfowl population. (May 1975) Owner: State

Dickinson County

*CAYLER PRAIRIE	Five miles west of West Okoboji. An example of increasingly rare virgin prairie grassland; a unique outdoor laboratory. (October 1965) Owner: State

Dubuque County

*WHITE PINE HOLLOW PRESERVE	20 miles northwest of Dubuque. Only known remaining white pine tract in Iowa. (November 1967) Owner: State

Hamilton County

ANDERSON GOOSE LAKE	One mile east of Jewell. One of few essentially natural glacial pothole lakes remaining in the State, and important waterfowl habitat. (May 1975) Owner: Private

Howard County

*HAYDEN PRAIRIE	12 miles northwest of Cresco. A true prairie remnant where Iowa State University conducted research showing that true prairie declines when the quantity of litter exceeds annual herbage yield. Occasional burning or mowing corrects this, and gives minor plants an opportunity for establishment. (October 1965) Owner: State

IOWA

Monona and Harrison Counties

LOESS HILLS

This dual site, Turin (7,740 acres) and Little Sioux/Smith Lake (2,980 acres), together represent the best examples of loess topography (wind-blown silt) in the Missouri River Bluffs region. It is in this region of the U. S. where the deepest loess has accumulated, presenting the best example of this unusual type of landscape. Together, these sites express the representative landforms and native vegetation of classic loess deposits. The only known comparable area is located along the Yellow River in northern China. (May 1986) Owner: State and Private

Palo Alto County

***DEWEY PASTURE AND SMITH'S SLOUGH**

(see Clay County)

Winnesheik County

COLD WATER CAVE

Located in the glaciated portion of the upper Midwest, where caves are rare and cave formations (speleothems) are generally minor, Cold Water Cave is exceptional as an extensive cave system that is well decorated with speleothems. It contains numerous vertical shafts and an unusually large, active, meandering underground stream that courses along most of the approximately 7.3 miles of cave passageways. Because the cave is locked and not accessible to the general public, it remains in unimpaired natural condition. Having formed probably with the last 200,000 years in a limestone formation of Ordovician age, the cave system is also relatively young in geologic terms, and appears to be enlarging more rapidly than most caves in the United States. The cave atmosphere is also unusual for its typically low oxygen content and extremely high carbon dioxide content. (November 1987) Owner: Private

KANSAS (5)

Clarke County

*BIG BASIN PRESERVE	13 miles west-northwest of Ashland. Excellent example of collapse features formed by groundwater geological processes, and bluestem-grama prairie which is intensively grazed, in the central Great Plains. (March 1979) Owner: State

Douglas County

*BAKER UNIVERSITY WETLANDS	Three miles south of Lawrence. Undisturbed examples of wetland prairie, and breeding ground for pintails, mallards and Canada geese. (June 1969) Owner: Private
BALDWIN WOODS	A unique remnant oak-hickory stand approaching climax condition, located at the western edge of the eastern deciduous forest. (November 1980) Owner: Private

Gove County

*MONUMENT ROCKS NATURAL AREA	23 miles south of Oakley. This area includes pinnacles, small buttes, and spires of chalk of the Niobrara formation, erosional remnants of sediments deposited in the ancient Kansas sea of Cretaceous time, and is a rich source of fossils of Cretaceous marine animals. (October 1968) Owner: Private

Ottawa County

ROCKY CITY	Two and one-half miles southwest of Minneapolis. A unique cluster of about 200 great spherical sandstone concretions occurring in the midst of rolling farmland. (January 1976) Owner: Private

KENTUCKY (5)

Henderson County

HENDERSON SLOUGHS	(extends into Union County)--Four miles northeast of Uniontown. One of the largest wetlands remaining in the State and an important habitat for waterfowl and other wildlife. Also the "home" of John James Audubon. (May 1974) Owner: Federal, State

Jefferson County

OHIO CORAL REEF (FALLS OF THE OHIO)	(see INDIANA)

Laurel County

*ROCK CREEK RESEARCH NATURAL AREA	Daniel Boone National Forest, two miles west of Baldrock. One of the few virgin hemlock-hardwood forests remaining in the State. (May 1975) Owner: Federal

Letcher County

*LILLEY CORNETT WOODS	25 miles southeast of Hazard. Probably the only surviving virgin tract of any size in the Cumberland Mountains section of the mixed mesophytic forest, which is characterized by a great variety of tree species. (June 1971) Owner: State

Menifee County

RED RIVER GORGE	(extends into Powell and Wolfe Counties)--Daniel Boone National Forest, 50 miles east-southeast of Lexington. Contains examples of geological formations, including 41 natural bridges, and supports an extremely diverse flora, including endemic, rare and relict species. (January 1976) Owner: Federal, Private

Powell County

RED RIVER GORGE	(see Menifee County)

KENTUCKY

Russell County

CREELSBORO NATURAL BRIDGE

This 8.2-acre site, located 14 miles southwest of Jamestown, is the longest natural bridge, or natural tunnel, n the Highland Rim Section of the Interior Low Plateaus Natural Region. Whereas most of the natural bridges and arches of Kentucky are formed in sandstone or conglomerate, Creelsboro Natural Bridge is composed of limestone of Ordovician age. The occasional diversion of Jim Creek through the tunnel into the adjacent Cumberland River during high water is an outstanding illustration of subterranean stream diversion, a process by which the bridge formed and which continues today. In addition, the occasional reverse flow of the Cumberland River flood waters back through the tunnel into the Jim Creek valley is highly unusual. The bridge spans 75 feet over a tunnel 100 feet long, with a height of 15 feet on the upstream side and about 40 feet on the downstream side. (November 1987) Owner: Private

Union County

HENDERSON SLOUGHS (see Henderson County)

Wolfe County

RED RIVER GORGE (see Menifee County)

MAINE (15)

Aroostook County

CRYSTAL BOG	Four miles southeast of Pattern. One of the largest and most outstanding untouched sphagnum bogs in the State, containing stands of tamarack, black spruce and hemlock. (May 1973) Owner: Private

Cumberland County

*NEW GLOUCESTER BLACK GUM STAND	Two miles southwest of Upper Gloucester. Rare and outstanding small remnant of essentially virgin black gum dominated swamp forest, near the northernmost limit for this species. (May 1975) Owner: Private

Franklin County

BIGELOW MOUNTAIN	(extends into Somerset County)--The center of the site is six miles east of Stratton. One of the best and most representatives alpine vegetation zones among lower elevation New England Mountains. (May 1975) Owner: State

Kennebec County

*COLBY-MARSTON PRESERVE	Two miles north of Belgrade. Classic example of a northern sphagnum bog with distinct and well-defined vegetation zonation. A kettle-hole bog surrounded by hemlock-white pine and northern hardwood forests. (May 1973) Owner: Private
PENNY POND-JOE POND COMPLEX	Two and one-half miles south of Belgrade. Relatively untouched wetland area in a glacial outwash plain, containing a number of vegetative communities. (May 1973) Owner: Private

Knox County

APPLETON BOG ATLANTIC WHITE CEDAR STAND	Four miles southeast of Liberty in southeastern Maine. Largest and best of the few remaining virgin stands of Atlantic white cedar in the northeasternmost extension of its range. Large and undisturbed peatland with a continuous forest covering classic hun.mock-and-hollow topography. (January 1984) Owner: Private

MAINE

Lincoln County

MONHEGAN ISLAND	Ten miles south of Port Clyde, in the Atlantic Ocean. The northern half of the island is covered with dense, almost pure, red spruce forest. The island is located on the Atlantic flyway and supports a variety of bird species. (April 1966) Owner: Private

Penobscot County

***ORONO BOG**	Six miles southwest of Old Town. An outstanding example of a northern sphagnum bog. (May 1973) Owner: Private
PASSADUMKEAG MARSH AND BOGLANDS	Two miles east of Passadumkeag. Passadumkeag Esker, or Enfield Horseback, is a classic illustration of an esker, and the site is one of the largest and finest unspoiled wetlands in the State. (May 1973) Owner: Municipal, Private

Piscataquis County

***GULF HAGAS**	14 miles of Greenville. Significant illustration of the geological formation of a steep-walled, youthful gorge cut by a wild river through folded and tilted slates and siltstones, containing an excellent spruce-fir forest on the walls of the gorge. (April 1968) Owner: Private
***MOUNT KATAHDIN**	Baxter State Park, 30 miles north of Millinocket. Outstanding example of glacial-geological features, such as kames, eskers, drumlins, kettleholes and moraines, and containing virgin forests and alpine-tundra ecosystems surrounding unaltered lakes and streams. (November 1967) Owner: State
***THE HERMITAGE**	Six miles northwest Katahdin Iron Works. One of the very few undisturbed old-growth white pine stands left in all of New England. Also contains hemlock and hardwood stands. (May 1967) Owner: Private

Somerset County

BIGELOW MOUNTAIN	(see Franklin County)

MAINE

***NO. 5 BOG AND JACK PINE STAND**	13 miles southeast of the Quebec border in northwestern Maine. One of the larger peatlands in Maine and the only intermontane peatland in the northern Appalachian Mountains. It has the greatest abundance and variety of string patterns of any U.S. peatland east of the northern Great Lakes. The jack pine forest and well-defined surficial glacial features, coupled with the many botanical species and geological features located here, constitute a diversity of natural features found nowhere else in the northern United States. (August 1964) Private, State
Washington County	
***CARRYING PLACE COVE BOG**	One and one-half miles south of South Lubec. One of the finest examples of coastal raised plateau bogs, of which there are only six undisturbed, fully featured examples in the Nation. Also a fine example of a tombollo (tied island) eroded by the sea and encroached upon by a tidal beach. (April 1980) Owner: State
MEDDYBEMPS HEATH	Three miles west of Meddybemps. Outstanding example of a large, undisturbed northern bog interspersed with small wooded islands. Area contains two major streams surrounded by vast, high heath shrub vegetation and ringed with stands of black spruce and larch. (May 1973) Owner: Private

MARYLAND (6)

Baltimore County

*LONG GREEN CREEK AND SWEATHOUSE BRANCH	Gunpowder Falls State Park, two miles north of Perry Hall. Mature beech-tulip poplar-white oak forest representative of the climax mesic forest type in the region, and containing an outstandingly rich herbaceous flora. (May 1977) Owner: State

Calvert County

*BATTLE CREEK CYPRESS SWAMP	On State Route 506, between Bowens and Port Republic. One of the most northerly cypress swamps in the country, containing a wide range of plant and animal life. (April 1965) Owner: Private

Cecil County

GILPIN'S FALLS	Seven miles northwest of Elkton. The area exposes a spectacular sequence of early Paleozoic rocks and probably the best outcrop of undeformed early Paleozoic metavolcanic pillow basalts in the Middle Atlantic States. It is also a prime example of a Fall Zone stream. (August 1980) Owner: Private

Frederick County

*SUGAR LOAF MOUNTAIN	16 miles south of Frederick. Solutions to problems about age and structural relationships of rocks of the Piedmont Province are found here. Appears to be either an outlier to the east of the main mass of Catoctin Mountain or a root remnant of the ancient Appalachia land mass. (June 1969) Owner: Private

Garrett County

*CRANESVILLE SWAMP NATURE SANCTUARY	(extends into Preston County, West Virginia)--Nine miles north of Terra Alta, West Virginia. Occupies a natural bowl where cool moist conditions are conducive to plant and animal communities of more common northern locations. (October 1964) Owner: Private

MARYLAND

Prince Georges County

BELT WOODS	15 miles east of Washington, D.C. One of few remaining old-growth upland forests in the Atlantic Coastal Plain physiographic province. An example of upland hardwood forest dominated by tulip poplar and white oak, supporting a dense and diverse bird population. (December 1974) Private

MASSACHUSETTS (10)

Berkshire County

***BARTHOLOMEW'S COBBLE**	(see CONNECTICUT)
COLD RIVER VIRGIN FOREST	Mohawk Trail State Forest, nine miles southeast of North Adams. Probably the only virgin hemlock-northern hardwood forest in New England with the hemlocks and sugar maples exceeding 400 years in age. (April 1980) Owner: State
***MT GREYLOCK OLD GROWTH SPRUCE**	This 21.3 acre site contains three separate stands (9.4, 5.7, and 6.2 acres) of undisturbed old growth red spruce on the northwest slopes of Mt. Greylock, the highest mountain in Massachusetts. These stands have been undisturbed for at least 150-180 years, and may be virgin. No other old growth red spruce stands are known in Southern New England, while only a few comparable or better sites occur in Northern New England. (November 1987)

Bristol County

***ACHUSHNET CEDAR SWAMP**	Northwestern edge of New Bedford. One of the State's largest, wildest and most impenetrable swamps, and an outstanding example of the diversity of conditions and species in the glaciated section of the oak-chestnut forest type. (June 1972) Owner: State

Dukes County

***GAY HEAD CLIFFS**	On the western tip of Martha's Vineyard. An unusual cross section of Raritan and Magothy sediments of Cretaceous age and fossil-bearing sands of Miocene and either Pliocene or Pleistocene ages that rise as much as 150 feet above sea level, resting on the continental shelf and detached from the mainland. (October 1965) Owner: Municipal

MASSACHUSETTS

Essex County

LYNNFIELD MARSH	(extends into Middlesex County)--Between Wakefield and South Lynnfield. The area preserves the habitat requirements of many bird species and serves as a breeding ground for the king rail and least bittern, rare species in the region. June 1972) Owner: Municipal, Private

Franklin County

*HAWLEY BOG	One mile northwest of Hawley. Unspoiled cold northern boreal sphagnum-heath bog occupying an old shallow glacial lake basin which demonstrates bog succession from the central open water pond to the surrounding spruce-fir forest. (May 1974) Owner: State

Hampden County

*FANNIE STEBBINS REFUGE	Five miles south of Springfield. The area contains the only sizeable example of Connecticut River flood plain under preservation, exhibiting many successional stages including upland and flood plain forest, swamp, marsh, ponds, and meadows. (June 1972) Owner: Municipal, Private

Middlesex County

LYNNFIELD MARSH	(see Essex County)

Nantucket County

MUSKEGET ISLAND	Five miles northwest of Nantucket Island. The only known locality where the Muskeget vole is found, and southernmost station where the gray seal breeds. The area supports an enormous nesting population of herring gulls and black-backed gulls. (April 1980) Owner: Municipal, Private

Plymouth County

NORTH AND SOUTH RIVERS	Centered about 20 miles southeast of Boston. Classic examples of drowned rivermouth estuaries, supporting at least 45 species of fish and many species of birds. The site contains salt marsh, brackish marsh and freshwater marsh areas. (May 1977) Owner: State, Municipal, Private

MASSACHUSETTS

Worcester County

POUTWATER POND — North of Holden. An undisturbed sphagnum-heath bog in southern New England, illustrating ecological succession from open water in a glacial depression to upland forest. (June 1972) Owner: Private

MICHIGAN (12)

Bay County

*TOBICO MARSH	Tobico Marsh State Game Area, seven miles north of Bay City. Relatively undisturbed area with three distinct habitats: a wide expanse of open water, marshland, and a mixed hardwood forest used by large numbers of migrating waterfowl. (January 1976) Owner: State

Berrien County

GRAND MERE LAKES	Two miles southwest of Stevensville. The site contains four low areas created during the evolution of postglacial ancestors of Lake Michigan, providing a unique ecological area documenting the evolution of aquatic to terrestrial communities, surrounded by a buffer zone of dunes, and containing many rare relict species. (April 1968) Owner: State, Private
WARREN WOODS NATURAL AREA	Three miles north of Three Oaks. Last known stand of virgin beech-maple forest in southern Michigan containing outstanding individual specimens of sycamore, beech, maple and other northern hardwoods. (November 1967) Owner: Private, leased to State

Cass County

*NEWTON WOODS	28 miles southwest of Kalamazoo. One of the last remaining old-growth oak-mixed hardwood stands on Michigan's lower peninsula. (January 1976) Owner: State

Ingham County

*TOUMEY WOODLOT	On the Michigan State University campus in East Lansing. An extremely rare example of a virgin stand of beech-maple forest serving as an important source for ecological research. (January 1976) Owner: State

Jackson County

*BLACK SPRUCE BOG NATURAL AREA	Ten miles northeast of Jackson. Boreal bog forest illustrating the last stage of succession in the sphagnum bog ecosystem, containing an excellent stand of black spruce. (December 1976) Owner: State

MICHIGAN

Marquette County

*DUKE NATURAL RESEARCH AREA	Upper Peninsula Experimental Forest, 17 miles southeast of Marquette. Undisturbed white cedar and mixed conifer swamp containing old-growth hardwood stands. (May 1974) Owner: Federal

Missaukee County

*DEAD STREAM SWAMP	(extends into Roscommon County)--Houghton Lake State Forest, 30 miles northeast of Cadillac. A large example of a northern white cedar swamp considered to be the climax in bog forest development. (January 1976) Owner: State

Oakland County

*HAVEN HILL STATE NATURAL AREA	Highland State Recreation Area, 12 miles west of Pontiac. This area contains all of southern Michigan's principal forest types in one small tract, supporting 17 mammal and over 100 bird species. (January 1976) Owner: State

Ontonagon and Gogebic Counties

PORCUPINE MOUNTAIN	Large tract of white pine containing the best and largest stand of virgin northern hemlock in the Lake States, and is the largest relatively undisturbed northern hemlock hardwood forest west of the Adirondacks. Lake of the Clouds is nestled within the virgin forest and presents a spectacular view from the escarpment. Mirror and Lily Pond lakes remain unspoiled. The Presque Isle River, which cascades over falls and rapids into Lake Superior, adds outstanding scenic beauty. The area contains excellent examples of wavecut beaches marking former glacial lake shorelines. (December 1984) Owner: State

Roscommon County

*DEAD STREAM SWAMP	(see Missaukee County)
ROSCOMMON VIRGIN PINE STAND	Ten miles east of Roscommon. A State natural area containing one of the best old-growth red-pine stands in the Superior Upland natural region, with evidence of fires in 1798, 1888, and 1928. (November 1928) Owner: State

MICHIGAN

Schoolcraft County

*STRANGMOOR BOG	Seney National Wildlife Refuge, southwest of Seney. One of the most southern, undisturbed, patterned or stringed bogs in the country, resulting from the underlying arrangement of sand knolls or extinct dunes on a sloping sand plain. (November 1973) Owner: Federal

MINNESOTA (8)

Anoka County

*CEDAR CREEK NATURAL HISTORY AREA-ALLISON SAVANNA	(extends into Isanti County)--30 miles north of Minneapolis. Relatively undisturbed area where three biomes meet (tall grass prairie, eastern deciduous forest and boreal coniferous forest), supporting 61 species of mammals and 183 species of birds. A nationally and internationally famous research center. (May 1975, February 1980) Owner: State, Private

Beltrami County

UPPER RED LAKE PEATLAND	The center of the site is 15 miles northwest of Waskish. One of the largest peatlands remaining in the conterminous United States illustrating a variety of geological features and plant associations, especially the dominant and rare string bog, and an outstanding habitat for wildlife including endangered species. (May 1975) Owner: Federal, State, Private, Indian trust (Red Lake Tribe)

Big Stone County

*ANCIENT RIVER WARREN CHANNEL	(extends into Traverse County, Minnesota and Roberts County, South Dakota) near Browns Valley. A channel cut by the Ancient River Warren during the Ice Age, containing the Hudson Bay-Gulf of Mexico divide with a lake on each side as evidence of the irregularities in Ice Age sedimentation. (April 1966) Owner: State, Private

Cass County

*PINE POINT RESEARCH NATURAL AREA	Chippewa National Forest, 26 miles southeast of Bemidji. Contains undisturbed stands of red pine and mixed pine that have been protected for over 70 years, as well as bald eagle and osprey nests. (February 1980) Owner: Federal

Clearwater County

*ITASCA NATURAL AREA	Itasca State Park, 30 miles southwest of Bemidji, the area contains some of the finest remaining stands of virgin red pine, spruce-balsam fir, and maple-basswood-aspen forest, supporting 141 bird and 53 mammal species, including bald eagles. (November 1965) Owner: State

MINNESOTA

Isanti County

*CEDAR CREEK NATURAL HISTORY AREA-ALLISON SAVANNA	(see Anoka County)

Koochiching County

*LAKE AGASSIZ PEATLANDS NATURAL AREA	30 mile south of International Falls. An example of the extensive peatlands occupying the bed of ancient glacial Lake Agassiz, illustrating the process of peat accumulation over about 11,000 years. The area contains Myrtle Lake Bog, which developed contrary to usual successional process of lake filling, and is an excellent example of both raised and string bogs. (November 1965) Owner: State.

Lake County

KEELEY CREEK NATURAL AREA	Superior National Forest, 12 miles southeast of Ely. The area contains a large tract of undisturbed mixed pine and black spruce forest with rare mature jackpine stands and significant upland bogs. (February 1980) Owner: Federal

St. Louis County

LAC LA CROIX RESEARCH NATURAL AREA	Boundary Waters Canoe Area, 24 miles northwest of Ely. This area consists of old-growth virgin pine forest, and contains most of the physiographic and ecological features characteristic of the Boundary Waters region. (February 1980) Owner: Federal

Traverse County

*ANCIENT RIVER WARREN CHANNEL	(see Big Stone County)

MISSISSIPPI (5)

Calhoun County

***CHESTNUT OAK DISJUNCT**	16 miles north of Bruce. An isolated chestnut oak stand well removed from its normal range, surrounded by loblolly pine forest. (October 1966) Owner: Private

Madison County

***MISSISSIPPI PETRIFIED FOREST**	17 miles north of Jackson. A relatively undisturbed accumulation of ancient fir and maple driftwood which was buried in Teritary sands and subsequently covered with loess. Surface water has eroded gullies and exposed the logs. (October 1965) Owner: Private

Scott County

***BIENVILLE PINES SCENIC AREA**	Bienville National Forest, south of the town of Forest. One of the largest protected old-growth loblolly pine stands in the region. (May 1976) Owner: Federal
***HARRELL PRAIRIE HILL**	Bienville National Forest, two miles southeast of the town of Forest. Tall grass prairie that is one of the last and most representative remnants of the Jackson Prairie, a disjunct of the Black Belt region in Mississippi and Alabama. (May 1976) Owner: Federal

Sharkey County

***GREEN ASH-OVERCUP OAK-SWEETGUM RESEARCH NATURAL AREAS**	Delta National Forest, three noncontiguous tracts that are 18 miles west-northwest of Yazoo City. Contains three very rare remnants of virgin bottomland hardwood forest remaining in the Mississippi River delta region. Some of the oldest sweetgum stands are 250 to 300 years old. (May 1976) Owner: Federal

MISSOURI (16)

Barton County

***GOLDEN PRAIRIE**	16 miles northeast of Carthage. Example of an essentially virgin tall grass prairie ecosystem providing habitat for many species of flora and fauna, including a large population of greater prairie chicken. (May 1975) Owner: Private

Callaway County

***TUCKER PRAIRIE**	Seven miles north-northwest of Fulton. Virgin tall-grass prairie occurring within the transition zone between the oak-hickory forest and typical tall-grass prairie. (May 1975) Owner: Private

Camden County

CARROLL CAVE	Dendritic system of subsurface karst streams and tributaries. A dangerous cave which must not be visited without owner permission. (May 1977) Owner: Private

Clay County

***MAPLE WOODS NATURAL AREA**	A nearly virgin sugar maple and mockernut hickory forest; the combination of these two forest species is rare in the region. (April 1980) Owner: State

Crawford County

***ONONDAGA CAVE**	Five mile southeast of Leasburg. The cave contains an unusually large and varied number of speleothems and a ponded stream with a mean flow of about a million gallons per day. (April 1980) Owner: Private

Marion County

***MARK TWAIN AND CAMERON CAVES**	Two miles southeast of Hannibal. Two caves on either side of a small valley, Cave Hollow, which are exceptionally good examples of the maze type of cavern development. (June 1972) Owner: Private

MISSOURI

Mississippi County

*BIG OAK TREE	This 80-acre site, located within Big Oak Tree State Park, is approximately 12 miles southeast of East Prairie. It is the only sizable known tract of essentially virgin wet-mesic bottomland hardwood forest remaining in the northern part of the Mississippi Alluvial Plain section of the Gulf Coastal Plain natural region. (May 1986) Owner: State

Oregon County

GRAND GULF	A spectacular dolomite chasm located 8 miles west of Thayer formed by the roof collapse of a 3/4-mile long cave passage as a result of coalescence of adjacent sinkholes. Illustrates a variety of processes by which karst topography develops, including subterranean stream piracy. (June 1971) Owner: Private
GREER SPRING	52 miles west of Poplar Bluff. The second largest spring in the Ozarks which discharges into a high quality, cascading stream. A very diverse forest surrounds the spring and river. (April 1980) Owner: Private

Phelps County

*MARMEC SPRING	Maramec Spring Park, 8 miles southeast of St. James. One of the large springs in the Missouri Ozarks, and a source of water power from 1826 to 1877 for an ironworks, the ruins of which are still visible. (October 1971) Owner: Private

Ripley County

*CUPOLA POND	Mark Twain National Forest, 12 miles south-southeast of Fremont. One of the most ancient sinkhole ponds in the Ozark Plateaus, containing a nearly pure stand of disjunct water tupelo. (December 1974) Owner: Federal

St. Clair County

*TABERVILLE PRAIRIE	Two and one-half miles north of Taberville. One of the largest remaining virgin tall grass prairies containing typical prairie flora and fauna. (May 1975) Owner: State

MISSOURI

Ste. Genevieve County

PICKLE SPRINGS	Seven miles east of Farmington. A deep, forested gorge containing one of the finest Pleistocene relict habitats in Missouri, supporting numerous relict herbaceous plant species including one rare moss of tropical affinity and several plant species characteristic of the Appalachian Mountains. (May 1975) Owner: Federal

Stone County

*MARVEL CAVE	50 miles south of Springfield. Dome-shaped sinkhole entrance, with giant domepits below including one of the great dripstone units of all Ozark caves. (June 1972) Owner: Private

Taney County

*TUMBLING CREEK CAVE	A large, varied cave that contains the most diverse fauna known for any cave west of the Mississippi River, including a large-colony of the endangered grey bat. This is a fragile cave that can be critically damaged by unsupervised visitation. (April 1980) Owner: Private

Warren County

WEGENER WOODS	One quarter mile north of Holstein. Rare, essentially virgin oak-hickory dominated forest in a condition of gradual change to a sugar maple dominated forest, offering an opportunity to study the composition and dynamics of the presettlement condition of the Eastern Deciduous Forest. (May 1975) Owner: Private

MONTANA (11)

Beaverhead County

*RED ROCK LAKES NATIONAL WILDLIFE REFUGE	Two miles north of Lakeview. Relatively undisturbed, high-altitude ecosystem types representative of presettlement conditions, including wetlands supporting waterfowl and several uncommon species. Instrumental in the survival of the trumpeter swan. (May 1976) Owner: Federal

Big Horn County

CLOVERLY FORMATION SITE	The area contains early Cretaceous vertebrate fossils. (November 1973) Owner: Indian Trust (Crow Tribe), Private

Carbon County

BRIDGER FOSSIL AREA	This site contains fossils of Deinonychus antirrhopus, a new genus and species of carnivorous dinosaur which was only about 3 feet tall and 8 feet in length. (November 1973) Owner: Federal

Carter County

*CAPITOL ROCK	30 miles southeast of Ekalaka. Remnant of the once continuous blanket of Tertiary deposits that covered much of the Great Plains. Late Cretaceous, Paleocene, Oligocene, and Miocene strata are well displayed. (December 1976) Owner: Federal

Chouteau County

SQUARE BUTTE	49 miles east of Great Falls. An igneous rock intrusion between sedimentary beds (a laccolith) which provides one of the best examples of banded magmatic rock in the United States, with a clear distinction between dark and light fractions. The butte's flat crest supports relatively natural grassland communities. (August 1980) Owner: Federal, Private

Gallatin County

MIDDLE FORK CANYON	30 miles north of Bozeman. The area illustrates rocks deformed by crustal movements that created the Rocky Mountains, and includes an outstanding example of a canyon cut across the grain of the geologic structure by a superposed stream. (May 1977) Owner: Federal, Private

MONTANA

Garfield County

HELL CREEK FOSSIL AREA	Near Jordan. Fossils representative of large dinosaurs, including Tyrannosaurus rex, Ankylosaurus magniventris, Brachychampsa fontana (oldest known true alligator), and Triceratops prorsus (a horned dinosaur). (October 1966) Owner: Federal, Private

McCone County

BUG CREEK FOSSIL AREA	East northeast of Hell Creek Fossil Area. The site contains small mammal fossils. Taken together with the Hell Creek Fossil Area, the two sites span the decline of dinosaurs and beginning of mammalian dominance. (May 1966) Owner: Federal

Sanders County

GLACIAL LAKE MISSOULA	12 miles north of Perma. This was the largest of several lakes impounded by the Cordilleran Ice Sheet during the Quaternary period containing flood ripples 15 to 50 feet high, 100 to 250 feet broad, and from 100 yards to one-half mile long. (May 1966) Owner: Private

Sheridan County

MEDICINE LAKE SITE	20 miles north of Culbertson. An exceptional example of the processes of continental glaciation, including, till, outwash, eskers, kames, and terrace deposits. A variety of grassland plant and animal species are found here. (August 1980) Owner: Federal

NEBRASKA (4)

Cherry County

*VALENTINE NATIONAL WILDLIFE REFUGE	25 miles south of Valentine. One of the few remaining examples of the sandhill tall grass prairie ecosystem unique to the central Great Plains. It provides habitat for many rare species. (January 1976) Owner: Federal

Grant County

NEBRASKA SAND HILLS	Located immediately south of Hyannis. It is the largest sand dunes complex in the Western Hemisphere. The site differs from other large dunes of the world because it is almost completely stabilized by vegetation. (December 1984) Owner: State, Private

Lincoln County

*DISSECTED LOESS PLAINS	Located 17 miles south-southwest of Brady, loess (wind blown silt) deposits at this site are among the thickest (200+ feet) in the Great Plains Natural Region and in North America. Eroded canyons and deep valleys that occur here reveal the geological history of the Loess Plains better than any other place in the Great Plains. It has been well studied by geologists and described in the scientific literature, and also contains good examples of native vegetation. This 26,880-acre site is located near the Nebraska Sand Hills, the origin of much of the loess found in the Loess Plains. The 10,420-acre Loess Hills National Natural Landmark, in Monona and Harrison Counties, Iowa, complements this site as an exceptional illustration of constructional topography, in contrast to the erosional topography found here. (November 1987) Owner: Private

Sarpy County

*FONTENELLE FOREST	One mile south of Omaha. The largest virgin forest in the State, also containing high bluffs, river flood plain of the Missouri River and 20 acres of true prairie. (March 1964) Owner: Private

NEVADA (6)

Clark County

*VALLEY OF FIRE	35 miles northeast of Las Vegas. An outstanding example of overthrusting a great fold that has been exposed through erosion processes creating hugh rock formations, deep canyons, and a great variety of colors. The area supports gila monsters in the northern extreme of their range. (April 1968) Owner: State

Elko County

RUBY MARSH	(extends into White Pine County)--Ruby Lake National Wildlife Refuge, 50 miles south-southeast of Elko. One of the largest and finest natural wetlands in the State, and a stopover and nesting area for many migratory birds, including the greater sandhill crane and trumpeter swan. (November 1972) Owner: Federal

Nye County

*HOT CREEK SPRINGS AND MARSH	35 miles south of Lund. The White River springfish, a relict species, is found in large numbers here. The area is outstanding both as a spring and wetland area. (November 1972) Owner: State
*ICHTHYOSAUR SITE	Within Berlin-Ichthyosaur State Park, 20 miles east of Gabbs. The only known site containing fossil remains of 37 of the largest form of ichthyosaur, some up to 45 feet in length. (May 1973) Owner: Federal
LUNAR CRATER	70 miles east-northeast of Tonopah. A 400-acre depression that is though to have been formed by a past volcanic explosion, and one of two maars in the volcanic field of the Pancake Range. (May 1973) Owner: Federal
TIMBER MOUNTAIN CALDERA	Nellis Air Force Gunnery Range and Nevada Test Site. A restricted area containing a remnant of an elliptical caldera developed in the late Miocene and early Pliocene, it covers 8 to 10 miles and is surrounded by a moat-like depression extending to the rim of an older caldera. (May 1973) Owner: Federal

White Pine County

RUBY MARSH	(see Elko County)

NEW HAMPSHIRE (11)

Carroll County

***HEATH POND BOG**	Two miles northeast of Center Ossipee. A prime, unspoiled example of bog succession from open water to sphagnum-heath spruce bog. (June 1972) Owner: State
***NANCY BROOK VIRGIN SPRUCE FOREST AND SCENIC AREA**	(see Graton County)
***MADISON BOULDER**	Three miles north of Madison. A rectangular granite boulder 83 feet long, 37 feet wide and 23 feet high. The largest known glacial erratic in North America. (January 1970) Owner: State
WHITE LAKE PITCH PINE	Seven miles northeast of Center Ossipee. A mature, undisturbed pitch pine and bur-oak forest which is becoming rare in the Northeast. (April 1980) Owner: State

Cheshire County

***MOUNT MONADNOCK**	This 4,578-acre site, located within the towns of Jaffrey and Dublin about 80 miles northwest of Boston is the type locality of a monadnock, or isolated mountain remnant. In addition, the mountain exhibits the conspicuous effects of Pleistocene glacial erosion, including striations, roche moutonnees or whalebacks, and an oversteepened profile resulting from glacial plucking. (May 1987) Owner: State, Private
***RHODODENDRON NATURAL AREA**	13 miles south of Keene. A portion of Rhododendron State Park in the New England-Adirondacks natural region, this is the largest and most viable stand of rhododendron known at the northern extension of the species' range. (May 1982) Owner: State

Coos County

EAST INLET NATURAL AREA	Northeast of the Second Connecticut Lake, 50 miles north of Berlin. Virgin spruce-fir forest and spruce-tamarack bog in one unit. Excellent for study of edaphic influences on environment. (June 1972) Owner: Private

NEW HAMPSHIRE

***FLOATING ISLAND**	Two and one-half miles east-northeast of Erroll. Superb ecological community illustrating characteristic of a bog, pond, and river complex. Last potential habitat in New Hampshire for two endangered species-osprey and bald eagle. (June 1972) Owner: Private
***PONDICHERRY WILDLIFE REFUGE**	Two miles northeast of Whitefield Airport in Jefferson. A relatively stable bog-forest supporting an unusual variety of birdlife. (June 1972) Owner: State, Private
<u>Grafton County</u>	
***FRANCONIA NOTCH**	16 miles south of Littleton. A deep gorge formed by glacial movement, including landslide scars, talus slopes and stream-cut gorges. (June 1971) Owner: State
***NANCY BROOK VIRGIN SPRUCE FOREST AND SCENIC AREA**	This 1,590-acre site, located approximately 6 miles northwest of Barlett, is probably the largest virgin montane spruce forest in New England. Additionally, the diversity of the landscape is enhanced by landslides, steep valley walls, waterfalls, boulder streams, ponds, beaver clearings, mountain slopes, ridges, summits and distant views. (May 1987) Owner: Federal
<u>Strafford County</u>	
SPRUCE HOLE BOG	Two miles west-southwest of Durham. An ecological community occupying a true kettle hole, the last of six similar sites; five have been destroyed. (June 1972) Owner: Municipal

NEW JERSEY (10)

Bergen County	
***PALISADES OF THE HUDSON**	(see New York)
Cape May County	
***STONE HARBOR BIRD SANCTUARY**	In the southern end of Stone Harbor. The site is used exclusively as a sanctuary for birds and is probably the greatest single influence increasing the heron populations in New Jersey. (October 1065) Owner: Private
Essex County	
RIKER HILL FOSSIL SITE	In Roseland. One of the only two known localities of major size along the Northeastern coast where large numbers of dinosaur footprints are preserved in situ. (June 1971) Owner: County
Middlesex County	
PIGEON SWAMP	About six miles south of New Brunswick. This 1,250 acre site contains a complex of habitats from open ponds to upland hardwood forest. It is significant because it contains a sizeable example of mature inner coastal plain lowland hardwood forest. (December 1976) Owner: State, Private
Morris County	
***GREAT SWAMP**	Great Swamp National Wildlife Refuge, seven miles south of Morristown. Great Swamp is a unique blend of unspoiled forest, swamp,and marshland with many kinds of wildlife. (May 1966) Owner: Federal
TROY MEADOWS	One-half mile from Troy Hills. The area contains the last unpolluted freshwater marsh of any size in this region. It is an important habitat for a variety of birds and animals. (November 1967) Owner: State, Private

NEW JERSEY

Ocean County

*MANAHAWKIN BOTTOMLAND HARDWOOD FOREST	Manahawkin Fish and Wildlife Management Area, two miles southeast of Manahawkin. This site contains a mature bottomland hardwood forest dominated by sweetgum, red maple and black gum. It is one of the finest remaining examples of bottomland hardwood forest in the northern Atlantic Coastal Plain region. (January 1976) Owner: State

Passaic County

GREAT FALLS OF PATERSON-GARRETT MOUNTAIN	Adjacent to the city of Paterson. Garrett Mountain is an expansion of Great Falls of Paterson National Natural Landmark (April 1967). Together Great Falls of Paterson and Garrett Mountain provide an excellent illustration of the jointed basaltic lava flow which began a period of extrusion and intrusion throughout eastern North America in the early Mesozoic, influencing present day landforms in this region. (January 1964) Owner: Municipal

Somerset County

*WILLIAM L. HUTCHESON MEMORIAL FOREST	Six miles west of New Brunswick. The site contains a virgin mixed oak upland forest dominated by white, red, and black oaks. It is probably the best example of an old-growth mixed forest in New Jersey. (December 1976) Owner: State
*MOGGY HOLLOW NATURAL AREA	Two miles east of Far Hills. A 90-foot gorge which formerly was the outlet for ancient glacial Lake Passaic. The area is a superlative illustration of a phase of glaciation. (January 1970) Owner: Private

Warren County

*SUNFISH POND	Three miles northeast of the Delaware Water Gap. A spring-fed mountain lake surrounded by a hardwood forest. It is an outstanding illustration of glacial sculpture. (January 1970) Owner: State

NEW MEXICO (12)

Chaves County

BITTER LAKE GROUP

Nine miles northeast of Roswell. Contains sinkhole depressions formed by solution of gypsum-bearing rocks and supports shrub-grassland vegetation representative of the northern Chihuahuan Desert. (August 1980) Owner: Federal

***MATHERS RESEARCH NATURAL AREA**

41 miles east of Roswell. The best example of shinnery oak-sand prairie community in the southern Great Plains Natural Region. (May 1982) Owner: Federal

MESCALERO SANDS SOUTH DUNE

41 miles east of Roswell. The best example of an active sand dune system in the southern Great Plains Natural Region. A variety of successional stages from active dunes to a climax shinnery oak-sand prairie community is represented. (May 1982) Owner: Federal, State, Private

Dona Ana County

KILBOURNE HOLE

26 miles southwest of Las Cruces. An uncommon volcanic feature known as a maar, which is a depression caused by volcanic explosion that emits little volcanic material except gas. (May 1976) Owner: Federal, Private

Harding County

***BUEYEROS SHORTGRASS PLAINS**

17 miles east of Bueyeros. An example of the blue grama-buffalo grass prairie of the Great Plains considered to be typical of the pre-cattle-grazing era. Two of the three dominant natural grazing animals (antelope and prairie dog) are still in the area. (February 1980) Owner: Private

Lincoln County

BORDER HILLS STRUCTURAL ZONE

24 miles west of Roswell. One of the several buckles on the Pecos slope located in otherwise gently dipping Permian strata. (February 1980) Owner: Federal, Private

***FORT STATION CAVE**

Seven miles west of Lincoln. The cave is characterized by very long and large open passages containing distinctive examples of selenite needles, starbursts, and velvet flowstone. (May 1974) Owner: Federal

NEW MEXICO

*TORGAC CAVE	20 miles southeast of Corona. Significant because of its abundant and intricate gypsum speleothems. The branching stalactite and helictite are so distinctive that the cave lends its name to the type: Torgac stalactites. (May 1974) Owner: Federal
Rio Arriba County	
*GHOST RANCH	South of Canjilon. The tract is predominantly shale and sandstone, and has yielded fossils, including many well-preserved skeletons of Coelophsis, the oldest and most primitive carnivorous dinosaur. (January 1976) Owner: Private
VALLES CALDERA	(extends into Sandoval County)--30 miles northwest of Santa Fe. A large circular depression, 12 to 15 miles in diameter, with scalloped walls rising from a few hundred to more than 2,000 feet above the present floor. It is one of the largest calderas in the world. (May 1975) Owner: Private
VALLES CALDERA	(see Rio Arriba County)
San Juan County	
*SHIP ROCK	35 miles west of Farmington. Ship Rock is an outstanding example of an exposed volcanic neck accompanied by radiating dikes; it towers 1,400 feet above the surround plain. (May 1975) Owner: Indian trust (Navajo Tribe)
Valencia County	
GRANTS LAVA FLOW	Extends 25 miles south from Grants. A classic example of recent extrusive volcanism. It contains lava flows that appear very fresh and unweathered. Its gigantic pressure ridges, collapse depressions, and lava tubes are outstanding. (July 1969) Owner: Federal, State, Private

NEW YORK (26)

Albany County

***BEAR SWAMP** — Three miles south of Westerlo. A low, swampy woodland consisting of red maple, yellow birch, black ash, white elm, white pine, and hemlock. Its most outstanding feature is the great laurel covering 60 acres of the swamp. (May 1973) Owner: Private

Allegany County

***MOSS LAKE BOG** — Two miles southwest of Houghton. The site is a classic example of a postglacial sphagnum bog invading and filling a small kettle lake, with the various stages of bog succession well illustrated. (May 1973) Owner: Private

Cattaraugus County

***DEER LICK NATURE SANCTUARY** — Four miles southeast of Gowanda. The area includes a gorge that clearly illustrates exposed stratifications of the Onondaga Escarpment, and supports a mature northern hardwood forest. (November 1967) Owner: Private

Dutchess County

***THOMPSON POND** — 20 miles east of Kingston. The 75-acre, glacially created pond is not more than four feet deep, fringed by cattail marshes, with reeds and water lilies in deeper water. Owner: Private

Genesee County

***BERGEN-BYRON SWAMP** — Between Bergen and Byron, 25 miles west of Rochester. This site consists of an area of some 2,000 acres that is unusually rich in plant and animal life. (March 1964) Owner: Private

***FOSSIL CORAL REEF** — Four miles northwest of Le Roy. An exposed fossil site in an abandoned limestone quarry surrounded by woodland. It is extremely rich in fossil corals. (November 1967) Owner: Private

NEW YORK

*OAK ORCHARD CREEK MARSH	(extends into Orleans County)--Iroquois National Wildlife Refuge, seven miles southeast of Medina. The area is a relatively undisturbed marsh that is rare for this part of New York State. (May 1973) Owner: Federal
Herkimer County	
MOSS ISLAND	Within the city limits of Little Falls. The island is part of an uplifted fault block of ancient crystalline rock. It contains the best exposure of glacial age potholes eroded by meltwater floods in the eastern United States. (May 1976) Owner: State
Jefferson County	
*DEXTER MARSH	Two miles southwest of Dexter. The site is a relatively undisturbed, extensive example of a large bay-head marsh complex at the eastern end of Lake Ontario. (May 1973) Owner: State
*IRONSIDES ISLAND	(extends into St. Lawrence County)--In the St. Lawrence River, eight miles northeast of Alexandria Bay. A glacially-scoured granite knoll; the most significant feature is the breeding colony of great blue herons. (April 1967) Owner: Private
LAKEVIEW MARSH AND BARRIER BEACH	20 miles southwest of Watertown. One of the best and most extensive marshlands that lie in protected bays and behind barrier beaches along eastern Lake Ontario. The marsh-swamp-pond complex demonstrates great wetland diversity. (May 1973) Owner: State
Livingston County	
*FALL BROOK GORGE	One and one-half miles south of Geneseo. One of America's finest exposures of Upper and Middle Devonian age strata. Significant fossil remains are found at this site. (January 1970) Owner: Private
Monroe County	
*HARTS WOODS	Ten miles southeast of Rochester. A rare remnant of the original beech-maple forest that once occupied a large glaciated area extending from southeastern Wisconsin to north-central New York. (June 1972) Owner: Municipal

NEW YORK

*MENDON PONDS PARK	11 miles south of Rochester. A unique complex of glacial features including kames, eskers, esker fans, kettle holes, erratics, bogs, and ponds. (November 1967) Owner: County
Onondaga County	
*ROUND LAKE	Green Lakes State Park, two miles northeast of Fayetteville. The site contains one of 11 meromictic lakes reported in the United States, and about 20 acres of outstanding virgin mesophytic forest adjoin the lake. (May 1973) Owner: State
Orleans County	
*OAK ORCHARD CREEK MARSH	(see Genesee County)
Rockland County	
*HOOK MOUNTAIN AND NYACK BEACH STATE PARK	One mile north of Nyack . The area contains a portion of the Palisade Sill. The geological features are deposits charactertic of the filling of basins that developed during rifting and opening of the North Atlantic Basin 180-200 million years ago. (April 1980) Owner: State
*IONA ISLAND MARSH	Two miles south of Fort Montgomery. A brackish estuarine marsh in a near natural state that fringes the Hudson River. Many rare plants are found here. (May 1974) Owner: State
St. Lawrence County	
*IRONSIDES ISLAND	(see Jefferson County)
Saratoga County	
*PETRIFIED GARDENS	Four miles west of Saratoga Springs. The area includes one of the best exposure of fossil reefs made up of calcareous algae, known as cryptozoon. (April 1967) Owner: Private

NEW YORK

Seneca County

*MONTEZUMA MARSHES	Montezuma National Wildlife Refuge four miles northeast of Seneca Falls. A marsh dominated by broadleaved cattail. A small 100-acre within the site is one of the best examples of undisturbed swamp woodlands in New York or New England. (May 1973) Owner: Federal

Suffolk County

*BIG REED POND	Three miles west of Montauk Point. The freshwater pond supports a herd of whitetail deer and other wildlife, and has no extensive man-made development along its shoreline. (May 1973) Owner: County
GARDINER'S ISLAND	100 miles east of New York City, in Block Island Sound off Long Island. The island is a breeding ground for osprey and is an important habitat of other fauna particularly waterfowl and shore birds. (April 1967) Owner: Private
*LONG BEACH ORIENT STATE PARK	One mile south of Orient. One of the finest remaining examples in New York of a sand-gravel spit illustrating succession from salt marsh to maritime forest. The area contains a breeding colony of common and roseate terns, species which are becoming scarce in other northern Atlantic breeding grounds. (April 1980) Owner: State

Tompkins County

*MCLEAN BOGS	One and one-half miles east southeast of McLean. The bogs contain rare plant species and one of the best examples of a northern deciduous forest in New York. (May 1973) Owner: Private

Ulster County

*ELLENVILLE FAULT-ICE CAVES	Five miles southeast of Ellenville. The largest known exposed fault system in the United States, along with a series of ice caves formed from fault debris. (November 1967) Owner: Municipal

NEW YORK

Wayne County

*ZURICH BOG	Nine miles north of Newark. A good example of northern bog and bog forest vegetation that is uncommon in north-central New York State. (May 1973) Owner: Private
*MIANUS RIVER GORGE	Two miles south of Bedford. An exceptional illustration of piedmont physiography and geomorphology. It contains an excellent climax hemlock forest. (March 1964) Owner: Private

NORTH CAROLINA (13)

Allegheny County

*STONE MOUNTAIN	(extends into Wikes County)--Stone Mountain State Park, nine miles southeast of Sparta. The best example of a monadnock in massive granite in North Carolina. Unique, endemic plants persist on the granite outcrops. (May 1974) Owner: State

Ashe County

LONG HOPE CREEK SPRUCE BOG	(extends into Watauga County)--Ten miles north-northeast of Boone. One of the rarest plant communities of North Carolina and the southeast, including American yew and buckbean. (May 1974) Private

Beaufort County

GOOSE CREEK STATE PARK NATURAL AREA	Ten miles east of Washington. An excellent example of a gently sloping mainland undergoing rapid ocean transgression. Contains the following diverse ecological units: brackish creeks and marshes, marsh transition areas, river swamp forest, and low pine forests. (April 1980) Owner: State

Brunswick County

GREEN SWAMP	Nine miles north of Supply. The largest and most unique mosaic of wetland communities in the Carolinas. The site is also a refuge for rare animal species. (May 1974) Owner: Private
SMITH ISLAND	A 12,000-acre barrier island complex representing one of the wildest and most primitive areas remaining on the Atlantic Coast. Contains a relict live oak forest, which is one of the best unaltered examples of sand strand forest in existence, and a system of stable sand dunes. Salt marshes, tidal creeks, bays, and mudflats are used extensively by aquatic birds, and island beaches provide breeding habitat for loggerhead turtles. (October 1967) Owner: State, Private

NORTH CAROLINA

Dare County

NAGS HEAD WOOD AND JOCKEY RIDGE	One and one-half miles northwest of Nags Head and Bodie Island. The site illustrates the entire series of dune development and plant succession from shifting open dunes to forested stabilized dunes. (May 1974) Owner: State, County, Municipal, Private

Davie County

***ORBICULAR DIORITE**	An unusual plutonic igneous rock consisting of hornblende, pyroxene, and feldspars. (August 1980) Owner: Private

Hyde County

SALYER'S RIDGE NATURAL AREA	On the western end of Mattamuskeet National Wildlife Refuge, 5 miles north of Swanquarter. Rare example of mature loblolly pine forest in process of succession towards a deciduous forest. (June 1983) Owner: Federal

New Hanover County

SMITH ISLAND	(see Brunswick County)

Onslow County

BEAR ISLAND	Hammocks Beach State Park, 4 miles south-southeast of Swansboro. The area contains one of the largest and best examples of coastal eolian landforms in the Atlantic Coastal Plain. Dune movement has created a dynamic landscape of outstanding scenic beauty. (April 1980) Owner: State

Surry County

***PILOT MOUNTAIN**	Pilot Mountain State Park, 3 miles south of Pilot Mountain. A classic monadnock that harbors disjunct Blue Ridge Mountain vegetation. (May 1974) Owner: State

Wake County

***PIEDMONT BEECH NATURAL AREA**	William B. Umstead State Park, 7 miles northwest of Raleigh. Perhaps the finest example of mixed mesophytic forest in the eastern Piedmont of North Carolina, with unusually fine climax stands of beech in portions of the site. (May 1974)

	Owner: State
NORTH CAROLINA	
LONG HOPE CREEK SPRUCE BOG	(see Ashe County)
Wilkes County	
***STONE MOUNTAIN**	(see Alleghany County)
Yancey County	
***MOUNT MITCHELL STATE PARK**	20 miles northeast of Asheville. Mount Mitchell (6,684 feet above sea level) is the highest mountain in the eastern half of the United States. The park has the most extensive stand of Fraser's fir remaining in America. (May 1974) Owner: State

NORTH DAKOTA (4)

Billings County	
*TWO-TOP MESA AND BIG TOP MESA	14 miles northwest of Fairfield. Both mesas, one mile apart, are in a badlands terrain of sandstones, siltstones and clay. The mesas are characterized by an unbroken cover of grass on flat relief. (October 1965) Federal
Cavalier County	
*RUSH LAKE	Five miles south of Hannah. A large shallow, essentially undisturbed prairie pothole lake that is an important staging area for waterfowl. (May 1975) Owner: Private
Kidder County	
SIBLEY LAKE	Five miles north of Dawson. A large permanent alkaline lake, it provides a breeding and resting area for one of the largest and most diverse waterbird populations found in pothole lakes in the State. (May 1975) Owner: State, Private
Stutsman County	
FISCHER LAKE	25 miles northwest of Jamestown. Highly representative of the glacial moraine and pitted outwash plain surface of North Dakota. The area contains relatively undisturbed grassland and lush prairie woodlands. (April 1980) Owner: State, Private

OHIO (23)

Adams County

*BUZZARDROOST ROCK-LYNX PRAIRIE-THE WILDERNESS	25 miles west of Portsmouth. The site contains a number of different plant associations, including many rare or uncommon species. Has an almost 50-year history of scientific observations. (April 1967, December 1974, February 1980) Owner: Private
SERPENT MOUNT CRYPTOEXPLOSIVE STRUCTURE	(extends into Highland and Pike Counties)--31 miles southwest of Chillicothe. A structure of undetermined origin exposed by differential erosion. It is the smaller of two such outstanding cryptoexplosive structures in the Interior Low Plateaus and is the classic American example. (February 1980) Owner: Private

Ashland County

*CLEAR FORK GORGE	Mohican State Park, four miles south of Loudenville. A geologically significant area of the Mohican River Valley that clearly shows evidence of stream reversal due to the Wisconsinan Glacier. (November 1967) Owner: State
*CRALL WOODS	Five miles south-south-west of New London. A near-virgin remnant maple-basswood-beech hardwood forest representing the original vegetation found in Ohio's glaciated till plain. (December 1974) Owner: State
*Dysart Woods	11 miles southwest of St. Clairsville. The area contains one of the finest remaining samples of the once superb white oak forests of eastern Ohio. (April 1967) Owner: State

Butler County

*HUESTON WOODS	(extends into Preble County)--Hueston Woods State Park, four miles north of Oxford. A noteworthy example of beech-maple climax forest that has never been cut. (April 1967) Owner: State

Champaign County

*CEDAR BOG	Cedar Bog State Memorial, seven miles north of Springfield. An excellent example of a marl swamp, containing a white cedar stand preserved in virgin condition. (April 1967) Owner: Private

Cuyahoga County

*ARTHUR B. WILLIAMS MEMORIAL WOODS	Within Mayfield. The site contains a remarkably pristine remnant beech-maple forest, among the finest timber stands remaining in the state of Ohio. (December 1974) Owner: Municipal
*TINKERS CREEK GORGE	12 miles southeast of Cleveland. Oak-hickory and beech-maple-hemlock predominate in this virgin forest. (November 1967) Owner: Municipal

Delaware County

*HIGHBANKS NATURAL AREA	(extends into Franklin County)--13 miles north of Columbus. A forested bluff overlooking the Olentangy River and containing a diverse and healthy herbaceous layer as well as outstanding examples of oak-hickory, beech-maple, and flood plain hardwood forests. The bluffs are crested with a disjunct acid xeric community of lichens and mosses. (February 1980) Owner: County

Erie County

*GLACIAL GROOVES STATE MEMORIAL	On Kelleys Island, 5 miles offshore from Marblehead. This area is made up of very large limestone glacial grooves that measure several feet in depth. (November 1967) Owner: Private

Fairfield County

*BLACKLICK WOODS	One mile south of Reynoldsburg. The tract is an outstanding example of relatively undisturbed, old-growth beech-maple and swamp forest communities of the type that once covered the flat till plain of central Ohio. (December 1974) Owner: County

Franklin County

*HIGHBANKS NATURAL AREA	(see Delaware County)

OHIO

Fulton County

*GOLL WOODS	Goll Woods State Park Forest, three miles northwest of Archbold. One of the best remaining examples of an oak-hickory dominated forest in the State. (December 1974) Owner: State

Geauga County

*HOLDEN NATURAL AREAS	(extends into Lake County)--30 miles east of Cleveland. A complex of three natural areas; Steblins Gulch, possessing geological formations of Chardon, Brea sandstone, Bedford and Cleveland types; Bole Forest, a northern hardwood virgin forest; and Hanging Rock Farm, a stand of natural northern hardwoods. The three areas serve as a unique control for arboretum lands abutting this landmark. (November 1967) Owner: Private
WHITE PINE BOG FOREST	Three miles south-south-west of Burton. The only remaining near-virgin remnant white pine boreal bog in Ohio. (January 1976) Owner: Municipal, Private

Greene County

*CLIFTON GORGE	Ten miles south of Springfield. The gorge is exemplary of interglacial and postglacial canyon-cutting into the dolomites of the Niagara Escarpment. (April 1967) Private
*GLEN HELEN NATURAL AREA	In Yellow Springs. Yellow Springs has built a travertine bowl around its pool. Downstream, Yellow Spring Creek is deeply incised into the dolomitic base rock. Old-growth hardwoods dominate the surrounding valley. (October 1965) Owner: Private

Hamilton County

*HAZELWOOD BOTANICAL PRESERVE	One-half mile east of Hazelwood. The highly detailed study of its plant ecology by John G. Segelken, published in 1929, makes this area an ecological benchmark. (December 1974) Owner: State

OHIO

Highland County	
*FORT HILL STATE MEMORIAL	Three miles north northwest of Sinking Spring. Possesses excellent outcrops of Silurian, Devonain, and Mississippian sedimentary bedrock, a natural bridge, and an example of glacial stream reversal. (December 1974) Owner: Private
SERPENT MOUND CRYPTOEXPLOSIVE STRUCTURE	(see Adams County)
Lake County	
*HOLDEN NATURAL AREAS	(see Geauga County)
*MENTOR MARSH	Near Painesville. The site consists of marsh vegetation, aquatic plants, swamp and bottomland forest, and upland forest. As a migration stopover and year-around habitat for birds and mammals, the site is a rarity in heavily populated northern Ohio. (October 1964) Owner: State, Private
Licking County	
*CRANBERRY BOG	20 miles east of Columbus. The vegetation in this cranberry sphagnum bog represents a relict of glacial time. It is a "floating island" in Buckeye Lake and is the only known bog of its type in existence. (October 1968) Owner: State
Pike County	
SERPENT MOUNT CRYPTOEXPLOSIVE STRUCTURE	(see Adams County)
Portage County	
MANTUA SWAMP	At the southeastern edge of Mantua. The area contains many different wetland communities including a flood-plain swamp forest, cattail marshes, a beaver pond, and a relict boreal bog. (January 1976) Owner: State, Private
Preble County	
HUESTON WOODS	(see Butler County)

OHIO

Wayne County

*BROWN'S LAKE BOG	11 miles southwest of Wooster. This site is one of the few, well-preserved, virgin boreal bogs remaining in a region where wetlands have been drained for agricultural use. (April 1967) Owner: Private

OKLAHOMA (3)

Alfalfa County

***SALT PLAINS NATIONAL WILDLIFE REFUGE**	Four miles east of Cherokee. Largest inland saline basin in the Central Lowlands Natural Region of the United States. The site is used as natural habitat by 75 percent of Nation's whooping cranes. Also one of few remaining habitats for inland least tern, snowy plover, Canadian geese and avocets in southern Central Lowlands. Important area for study of selenite crystal formation. (June 1983) Owner: Federal

Canadian Canyon

DEVIL'S CANYON	22 miles west-southwest of El Reno. The disjunct flora containing many mesic plant species, and the close proximity of two distinct vegetation types-oak woodland-tall grass prairie ecotone and eastern deciduous forest vegetation-form a unique ecological community. (December 1974) Owner: Private

McCurtain County

***MCCURTAIN COUNTY WILDERNESS AREA**	The center of the site is 12 miles south of Smithville. The site's overall size and high degree of integrity make it a classic example of a xeric upland oak-pine forest. (December 1974) Owner: Federal, State

OREGON (6)

Benton County

WILLIAMETTE FLOODPLAIN	This 682-acre site, located approximately 15 miles south of Corvallis, represents the largest remaining native unplowed example of bottomland interior valley grassland in the North Pacific Border Natural Region. All of these grasslands and shrubland communities have become exceedingly rare as most have been cultivated or converted to pastureland. (May 1987) Owner: Federal

Deschutes County

***HORSE RIDGE NATURAL AREA**	16 miles southeast of Bend. The area is distinguished by a high quality example of western juniper woodland in vigorous condition. (April 1967) Owner: Federal
***NEWBERRY CRATER**	Deschutes National Forest, 24 miles-southeast of Bend. The crater is a basin at the top of a dormant, though young, volcano which is the largest Pleistocene volcano east of the Cascade Range. (January 1976) Owner: Federal

Lake County

***FORT ROCK STATE MONUMENT**	49 miles south-southeast of Bend. A striking example of a circular, fort-like volcanic outcrop. (January 1976) Owner: State

Multnomah County

***CROWN POINT**	24 miles east of Portland. A promontory rising nearly vertically about 725 feet above the Columbia River. It provides a strategic vantage point for observing a classic illustration of riverine processes. (June 1971) Owner: State

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OREGON

Wasco County

LAWRENCE MEMORIAL GRASSLAND PRESERVE

Located 27 miles northeast of Madras, this site is an excellent illustration of topography known as "biscuit and scabland," formed in the Columbia Plateau by frost action during the Wisconsin glaciation period of the Pleistocene. This area is also known for its diverse plant communities. (December 1984) Owner: Private

PENNSYLVANIA (25)

Berks County

***HAWK MOUNTAIN SANCTUARY**	30 miles north of Reading. It is a sanctuary for hawks migrating along its ridge and a fine example of the geology and ecology of the forested ridges of the eastern Appalachians. (October 1965) Owner: Private

Bucks County

***MONROE BORDER FAULT**	Two miles south of Riegelsville. The fault illustrates an episode of orogenic compression in which Precambrian rocks were thrust northward over lower Paleozoic deposits. (August 1980) Owner: State

Carbon County

***HICKORY RUN BOULDER FIELD**	Hickory Run State Park, five miles southeast of White Haven. A geologically significant field of unsorted, loosely packed boulders that resulted from periglacial conditions and that i unique in the country by reason of its large size and low (one percent) gradient. (November 1967) Owner: State

Centre County

***BEAR MEADOWS NATURAL AREA**	Six miles southeast of State College. The area includes a shallow peat bog, and a surrounding buffer zone of typical Appalachian forest. The vast accumulation of pollen in the peat has helped understanding of vegetational and climatic changes in this region. (October 1965) Owner: State

Clarion County

***COOK FOREST**	Cook Forest State Park, one mile north of Cooksburg. It is a significant relict of the forest type that once covered northern Pennsylvania. Eastern white pine predominates with some hemlock and mixed hardwood. (November 1967) Owner: State

Cumberland County

***FLORENCE JONES REINEMAN WILDLIFE SANCTUARY**	(extends into Perry County)--Eight miles northwest of Carlisle. The area is a large, protected ecological community that lies on the migration route of various hawks. (November 1972) Owner: Private

PENNSYLVANIA

Erie County

***PRESQUE ISLE**	Near Erie. The isle is actually a peninsula or "flying spit" formed by sands carried by the currents of Lake Erie. It is an impressive illustration of this type of formation. (November 1967) Owner: State
TITUS AND WATTSBURG BOGS	Two different bogs in excellent condition that are representative of their ecosystem types and noted for rare and unusual species among their rich but divergent floras. (May 1977) Owner: Private

Fayette County

***FERNCLIFF PENINSULA NATURAL AREA**	Ohiopyle State Park, 20 miles southeast of Connellsville. This area is one of the best and most typical late successional forests in the Allegheny Mountains. (November 1972) Owner: State

Lancaster County

***FERNCLIFF WILDFLOWER AND WILDLIFE PRESERVE**	Three miles west of Wakefield. The vegetation in the preserve, which is thought to be virgin, is an excellent example of a mixed mesophytic forest. (November 1972) Owner: Private

Lawrence County

MCCONNELL'S MILL STATE PARK	40 miles north of Pittsburgh. An outstanding geological example of land and watershed formation indirectly resulting from glacial diversion of a stream. (November 1972) Owner: State

Luzerne County

***THE GLENS NATURAL AREA**	(extends into Sullivan County)--In Ricketts Glen State Park, 25 miles east of Williamsport. A relict eastern deciduous forest containing examples of stream erosion and spectacular waterfalls. (April 1968) Owner: State

PENNSYLVANIA

McKean County

***TIONESTA SCENIC AND RESEARCH NATURAL AREAS**	(extends into Warren County)--Allegheny National Forest, 7 miles south of Ludlow. The area is the largest virgin forest in the hemlock-white pine/northern hardwood forest regions of North America. (May 1973) Owner: Federal

Monroe County

TANNERVILLE CRANBERRY BOG	Five miles northwest of Stroudsburg. One of the best developed boreal bogs in Pennsylvania and perhaps the most southern black spruce-tamarack bog along the eastern seaboard. (December 1974) Owner: Private

Perry County

***BOX HUCKLEBERRY SITE**	Two miles south of New Bloomfield. One of the few localities where the box huckleberry plant is found. (April 1967) Owner: State
***FLORENCE JONES REINEMAN WILDLIFE SANCTUARY**	(see Cumberland County)
***HEMLOCKS NATURAL AREA**	Tuscarora State Forest, 12 miles south of Blain. A virgin forest that has more resemblance to the hemlock-northern hardwood forests than to the oak-chestnut forests in which it is located. (November 1972) Owner: State
***SUSQUEHANNA WATER GAPS**	18 miles north of Harrisburg. An excellent, typical example of a geological process that produces water gaps. (April 1968) Owner: State

Philadelphia County

***TINICUM WILDLIFE PRESERVE**	Philadelphia. The area contains representative tidal marsh flora and fauna and an excellent wildlife population. (October 1965) Owner: Federal
***WISSAHICKON VALLEY**	Fairmont Park, Philadelphia. A virtually untouched valley, ecologically varied and complete, that exists within the bounds of one of America's great metropolitan areas. (March 1964) Owner: Municipal

PENNSYLVANIA

Snyder County

***SNYDER-MIDDLESWARTH NATURAL AREA**	Five miles west of Troxelville. An outstanding example of a relict forest composed predominantly of hemlock, birch, and pine, with scattered oaks. (November 1967) Owner: State

Sullivan County

***THE GLENS NATURAL AREA**	(see Luzerne County)

Tioga County

***PINE CREEK GORGE**	A 12 mile roadless stretch along Pine Creek between Ansonia and Blackwell. It contains superlative scenery, geologic and ecologic value, and is one of the finest examples of a deep gorge in the eastern United States. (April 1968) Owner: State
REYNOLDS SPRING AND ALGERINE SWAMP BOGS	Tioga State Forest, three miles south of Leetonia. Reynolds Spring Bog is one of the finest and most representative high mountain bogs in the Allegheny Mountains section of Pennsylvania. (December 1974) Owner: State

Warren County

***HEARTS CONTENT SCENIC AREA**	Allegheny National Forest, 14 miles southwest of Warren. A virgin forest consisting of white pine over 400 years old and hemlocks about 50 years younger. (May 1973) Owner: Federal
TAMARACK SWAMP	Four miles northeast of Columbus. A large headwater swamp occurring in a glacially blocked stream valley. The two bogs are the finest example of kettle hole bogs in this region. (May 1977) Owner: State
***TIONESTA SCENIC AND RESEARCH NATURAL AREAS**	(see McKean County)

Wayne County

***LAKE LACAWAC**	25 miles east of Scranton. One of the southernmost lakes of glacial origin in the northeastern United States. (April 1968) Owner: Private

PUERTO RICO (5)

BANO DE ORO NATURAL AREA	Caribbean National Forest, six miles southwest of Luquillo. Contains virgin forest and is the only area in Puerto Rico with subtropical wet forest and rain forest, dwarf forest, and Pterocarpus in a contiguous area. Also contains many endemic plant and animal species. (April 1980) Owner: Federal
CABO ROJO	At the extreme southwestern tip of Puerto Rico. This scenic site includes an excellent example of a tombolo (tied island) with double spit, mangroves, beaches, reddish cliffs, xeric vegetation, and seabird nesting habitat. (April 1980) Owner: Federal
MONA AND MONITA ISLANDS	Two separate islands in the Caribbean, west of the main island of Puerto Rico. The sea caves on these islands are probably the largest, most extensive and most unusual in the world. The islands harbor a significant endemic biota and provide important seabird rookery areas. (May 1975) Owner: Federal, Commonwealth of Puerto Rico
PUERTO MOSQUITO	One mile east of Esperanza. A deep inlet in the cliffed southern coast of Vieques Island which is considered the best example of a bioluminescent bay in the United States. (August 1980) Owner: Federal, Commonwealth of Puerto Rico
RIO ABAJO FOREST	Nine miles south of Arecibo. An excellent example of karst topography with numerous sinkholes and well-developed tower karst. It is the only place in Puerto Rico where the great Eocene-Oligocene unconformity can be clearly seen. (February 1980) Owner: Commonwealth of Puerto Rico

RHODE ISLAND (1)

Washington County

***ELL POND**	**Two miles southwest of Rockville. A kettle hole lake bounded by a red maple-Atlantic white cedar swamp and by steep granitic monadnocks. The combination of a hydric plant community and a xeric plant community within such a small area provides an excellent opportunity for ecological research and education. (May 1974) Owner: State, Private**

SOUTH CAROLINA (6)

Berkeley County

***FRANCIS BEIDLER FOREST**	(extends into Dorchester County)--35 miles northwest of Charleston. One of the last large virgin stands of bald cypress-tupelo gum swamp in the United States with five major community types providing for a rich diversity of species. (March 1979) Owner: Private

Beaufort County

***ST. PHILLIPS ISLAND**	This 4,951-acre barrier island is approximately four miles in length and two miles wide. It is unique among the barrier islands of Georgia, South Carolina and northern Florida, because it exists in a nearly undisturbed state with minimal development and past consumptive use; it is also unique to the entire Atlantic Coast for the pronounced multiple vegetated beach dune ridges found there. (May 1986) Owner: Private

Dorchester County

***FRANCIS BEIDLER FOREST)**	(see Berkeley County)

Lancaster County

FLAT CREEK NATURAL AREA AND 40 ACRE ROCK	54 miles northeast of Columbia. Contains the largest remaining undisturbed granitic flat-rock outcrop in the Carolina Piedmont. Flat-rock vegetation is in good condition, including 13 rare or endemic species and 20 other species characteristic of these outcrops. Chestnut, oak, mockernut, hickory, sweetgum and pignut hickory trees abound on the southeast facing slopes. Flat Creek Dike is one of the thickest in eastern North America (1,123 feet). Taken together, these geological and biological features in such close proximity represent an unusual outdoor laboratory. (August 1984) Owner: Private

McCormick County

***JOHN DE LA HOWE FOREST**	23 miles southwest of Greenwood. An old-growth stand of oak-pine forest protected against fire and timbering since 1797, and one of the best remaining examples of this type forest in the Piedmont. (January 1976) Owner: State

SOUTH CAROLINA

***STEVENS CREEK NATURAL AREA**	Pleistocene relict ecosystem harboring flora considered unusual for its combination of plants in this southern location due to unique microenvironmental conditions. (March 1979) Owner: State

Richland County

CONGAREE RIVER SWAMP	20 miles southeast of Columbia. The most extensive, mature cypress-gum swamp and bottomland hardwood forest complex in the State and a sanctuary for wildlife. (May 1974) Owner: Federal, Private

SOUTH DAKOTA (12)

Brule County

***RED LAKE**	Eight miles southeast of Chamberlain. One of the largest remaining natural and unmanipulated prairie pothole lakes, and a valuable waterfowl breeding and resting area. (May 1975) Owner: State

Charles Mix County

BIJOU HILLS	23 miles northwest of Platte. An excellent example of an erosional remnant of soft clays and shales capped by a channel sandstone and quartzite. (January 1976) Owner: Private

Custer County

***CATHEDRAL SPIRES AND LIMBER PINE NATURAL AREA**	Custer State Park, 23 miles southwest of Rapid City. An excellent, rare example of joint-controlled weathering of granite, as well as a disjunct relict stand of limber pine. (May 1976) Owner: State

Fall River County

MAMMOTH SITE OF HOT SPRINGS	Within the city limits of Hot Springs. This two-acre tract contains one of the largest concentrations of mammoth remains in the United States, as well as bones of other vertebrates including peccary, bear, coyote, camel, and rodents. (August 1980) Owner: Private

Gregory County

***FORT RANDALL EAGLE ROOST**	Directly below the Fort Randall Dam, on the Missouri River. Two endangered species, the bald and the golden eagles, use this site as a prime winter roosting area. (November 1967) Owner: Federal

Harding County

***THE CASTLES**	20 miles east-southeast of Buffalo. Steep-walled, flat-topped buttes standing 200 to 400 feet above the surrounding prairie containing exposed rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene ages. Cretaceous and Tertiary beds contain a variety of flora and fauna fossils. (December 1976) Owner: Federal

SOUTH DAKOTA

Kingsbury County

***LAKE THOMPSON**	Eight miles southeast of De Smet. Largest natural lake bed in South Dakota, containing a large undisturbed and unmanipulated marsh. Also an outstanding waterfowl breeding and resting area. (May 1975) Owner: State

Lake County

BUFFALO SLOUGH	20 miles north of Sioux Falls. An excellent example of a prairie pothole (a product of glacial activity), the surrounding native emergent vegetation, and native bluestem prairie. The area is used extensively by many species of waterfowl and small mammals. (August 1980) Owner: State

Marshall County

***SICO HOLLOW**	(extends into Roberts County)--Ten miles northwest of Sisseton. The area displays many facets of natural history, including the glacial story of the River Warren, pothole lakes on the upland of Coteau, grasslands and prairie, and ravines where eastern deciduous forests grow. Includes the eastern face of the escarpment of the Coteau des Prairies. (November 1967) Owner: State

Meade County

***BEAR BUTTE**	Five miles north of Fort Meade. A cone-shaped mass of igneous rock standing alone, 1,300 feet above the surrounding plains, which illustrates the geological processes of igneous intrusion, folding and faulting, and exposure by differential erosion. (April 1965) Owner: State

Robert County

***ANCIENT RIVER WARREN CHANNEL**	(see Minnesota)
COTTONWOOD SLOUGH-DRY RUN	Extends for 11 miles south of Victor. A glaciated finger outlet of the world's largest Pleistocene glacial lake, and a completely undisturbed wetland complex which includes potholes, streams, shallow open water, lakes, and marsh. (May 1975) Owner: State, Private

SOUTH DAKOTA

***SICA HOLLOW** (see Marshall County)

Washabaugh County

***SNAKE BUTTE** Pine Ridge Reservation. One of two types of sand calcite deposits in the world. (November 1967) Owner: Indian Trust (Oglaga Sioux Tribe)

TENNESSEE (13)

Coffee County

***ARNOLD ENGINEERING DEVELOPMENT CENTER NATURAL AREAS**	Two non-contiguous tracts, respectively located four miles south-southeast and seven miles southeast of Manchester. Extremely rare virgin swamp forest and pristine example of an open marsh; both tracts contain disjunct plant species whose distribution is normally confined to the Coastal Plain province. (December 1974) Owner: Federal
***MAY PRAIRIE**	Three and one-half miles southeast of Manchester. The largest and best relict prairie remaining in the State. (May 1974) Owner: State

Cumberland County

GRASSY COVE KARST AREA	Nine miles southeast of Crossville. One of the Nation's best illustrations of karst development and underground drainage, containing several smaller caves within the area. (November 1973) Owner: Private

Franklin County

DICK COVE	Two and one-half miles northwest of Sewanee. A near-virgin forest important for study of mixed mesophytic region and western mesophytic region eastern deciduous forest relationships. (May 1973) Owner: Private

Grundy County

CONLEY COUNTY	Two miles southeast of Viola. One of the most spectacular and outstanding examples of a pit cave in the United States. This cave is dangerous, and entrance is limited to adequately equipped, experienced speleologists. (November 1973) Owner: Private
***SAVAGE GULF**	25 miles southeast of McMinnville. The best and largest virgin forest left in the mixed mesophytic region of the Eastern Deciduous Forest. (June 1971) Owner: State

TENNESSEE

Hardeman County

MCANULTY'S WOODS — Within in the city limits of Bolivar. Only known example in western Tennessee of the upland forests of the Mississippi Embayment section of the western mesophytic forest region. (May 1973) Owner: Private

Lake County

***REELFOOT LAKE** — (extends into Obion County)--18 miles west-southwest of Union City. An area of cypress swamps, saw-grass jungles, water lily glades and scattered bodies of open water formed in the winter of 1811-12 as a result of shocks known as the New Madrid earthquake, the most severe of any recorded in the country. The site contains domes, sunken lands, fissures, sinks, sand blows and large landslides. (May 1966) Owner: State

Monroe County

***LOST SEA (CRAIGHEAD CAVERNS)** — Five miles southeast of Sweetwater. Cavern system including the largest known underground lake in the country, an abundance of crystal clusters called anthodites, stalactites and stalagmites, and a waterfall. The area once yielded bones and footprints of a giant Pleistocene jaguar. (November 1973) Owner: Private

Obion County

***REELFOOT LAKE** — (see Lake County)

Rhea County

***PINEY FALLS** — Two miles north of Spring City. The area contains a rare virgin mixed mesophytic forest stand representative of the primeval Eastern Deciduous Forest biome. (May 1974) Owner: State

Van Buren County

***BIG BONE CAVE** — Five miles west-northwest of Spencer. Site of discoveries of the bones of Megalonyx jeffersoni and other extinct animals. (November 1973) Owner: State

TENNESSEE

Warren County

***CUMBERLAND CAVERN (HIGGINBOTHAM AND HENSHAW CAVES)**	Five miles east of McMinnville. One of the largest cave systems in the country. Two interconnecting caves known to be at least 16 miles in extent containing stalagmites and stalactites, helictites, flowstone, cave pearls, botryoidal coral, gypsum flowers, needles, and pure white gypsum snow, as well as a wide variety of cave life. (November 1973) Owner: Private

Wilson County

***CEDAR GLADES NATURAL AREA**	Cedars of Lebanon State Forest, 10 miles south of Lebanon. Unique cedar glade community, a rare and endangered ecosystem. (November 1973) Owner: State

TEXAS (19)

Anderson County

CATFISH CREEK	20 miles northwest of Palestine. Best example of the few remaining undisturbed riparian habitats in the Western Coastal Plain. The site supports several wildlife species rarely found elsewhere in Texas. (June 1983) Owner: State

Armstrong County

***PALO DURO CANYON STATE PARK**	(extends into Randall County)--22 miles south-southwest of Amarillo. The canyon cut by waters of a fork of the Red River contains cross-sectional views of sedimentary rocks representing four geological periods and some Triassic and Pliocene vertebrate fossils. (May 1976) Owner: State

Bailey County

MULESHOE NATIONAL WILDLIFE REFUGE	59 miles northwest of Lubbock. The area contains playa lakes (shallow, flat-bottomed depressions) and shortgrass grama grasslands characteristic of the High Plains. The lakes attract enormous seasonal concentrations of waterfowl. (August 1980) Owner: Federal

Bandera County

LOST MAPLES STATE NATURAL AREA	(extends into Real County)--61 miles northwest of San Antonio. An excellent illustration of Edwards Plateau flora and fauna, and a relict population of bigtooth maple. It contains the largest known nesting population of the rare golden-cheeked warbler. (February 1980) Owner: State

Blanco County

***LITTLE BLANCO RIVER BLUFF**	The best example of the few remaining Edwards Plateau limestone bluff plant communities in the Great Plains Natural Region. The area supports diverse flora, including an estimated 250 species in 25 families. (May 1982) Owner: Private

TEXAS

Burnet County

***LONGHORN CAVERN**

Longhorn Cavern State Park, 11 miles southwest of Burnet. A cavern formed in limestone of Ordovician age at least 450 million years old, unsurpassed as a natural exhibit of features such as crystals of calcite, potholes, solution domes, and channels and pits of unusual geologic interest. (October 1971) Owner: State

Cameron County

BAYSIDE RESACA AREA

Laguna Atascosa National Wildlife Refuge, 28 miles north of Brownsville. The area contains an excellent example of a resaca, or meandering channel, which supports a variety of vegetation including several types of coastal salt marsh communities, and a number of rare and unusual bird species which enter the United States only at the southern tip of Texas. (August 1980) Owner: Federal

Colorado County

***ATTWATER PRAIRIE CHICKEN PRESERVE**

55 miles west of Houston in Attwater Prairie Chicken National Wildlife Refuge. The only significant segment of Gulf Coastal Prairie that has rejuvenated and restored itself through protection and proper range management. The area now provides habitat for the Attwater prairie chicken, an endangered species. (April 1968) Owner: Federal

Comal County

***NATURAL BRIDGE CAVERNS**

16 miles west of new Braunfels. A multilevel cavern system replete with beautiful and unusual "fried egg" speleothems and intricate helictites. (October 1971) Owner: Private

Ector County

***ODESSA METEOR CRATER**

Ten miles southwest of Odessa. One of only two known meteor sites in the country, the largest of two meteor impact craters at the site being 550 feet in diameter. Meteorites of nickel-iron composition have been found within the craters and two square miles north and northwest of them. (April 1965) Owner: County

TEXAS

Edwards County

DEVIL'S SINK HOLE — Nine miles northeast of Rocksprings. A deep, bell-shaped, collapsed limestone sink, the pit of which flares into an extensive system of passageways and caverns. It houses a colony of bats estimated to number in the tens of millions. (October 1972) Owner: Private

Gillespie County

***ENCHANTED ROCK** — (extends into Llano County)--12 miles southwest of Oxford. A classic illustration of a batholith and of the exfoliation process exposed on its dome-shaped surface, composed on coarse-grained pink granite uniform in composition and texture throughout, and unique in the Llano Uplift area. (October 1971) Owner: State

Hays County

***EZELL'S CAVE** — Within the city limits of San Marcos. Biologically significant because it houses at least 36 species of cave fauna, including six endemic aquatic species and one major order of small crustaceans formerly thought to have been restricted to the Mediterranean area. (October 1971) Owner: Private

Hildago County

***SANTA ANNA NATIONAL WILDLIFE REFUGE** — Seven miles south of Alamo. A living museum of the lowland forested area of the Lower Rio Grande Valley, containing jungle-like vegetation and providing habitat for over 300 species of birds and some rare mammals. (October 1966) Owner: Federal

Llano County

***ENCHANTED ROCK** — (see Gillespie County)

Montague County

GREENWOOD CANYON — Along a tributary of the Braden Branch. A rich source of Cretaceous fossils. (May 1975) Owner: Private

TEXAS

Randall County

HIGH PLAINS NATURAL AREA — Buffalo Lake National Wildlife Refuge, 26 miles southwest of Amarillo. A grama-buffalo shortgrass association of the High Plains region. (August 1980) Owner: Federal

***PALO DURO CANYON STATE PARK** — (see Armstrong County)

Real County

***LOST MAPLES STATE NATURAL AREA** — (see Bandera County)

Somervell County

***DINOSAUR VALLEY** — Dinosaur Valley State Park, four miles west of Glen Rose. Fossil footprint trackways exposed in the bed of the Paluxey River and tributary creeks that give important information on the habits and locomotion of large dinosaurs. (October 1968) Owner: State

Sutton County

***CAVERNS OF SONORA** — 16 miles southwest of Sonora. The cave displays unusual formations, such as bladed helictites and coralloid growths. (October 1965) Owner: Private

Tarrant County

***FORT WORTH NATURE CENTER AND REFUGE** — Within the city limits of Fort Worth. A portion of the larger refuge containing remnants of the Fort Worth Prairie. Also contains a unique oak-hickory forest association called cross timbers, a riparian forest, and limestone ledges and marshes. (November 1980) Owner: Municipal

UTAH (4)

Emery County

***CLEVELAND-LLOYD DINOSAUR QUARRY**	Seven miles east of Cleveland. The quarry has provided more than 10,000 fossil bones from at least seven different genera of the Jurassic Period and representing more than 60 individual animals. Restricted access. (October 1965) Owner: Federal

Garfield County

LITTLE ROCKIES	43 miles south-southeast of Hanksville. The area exhibits a particular type igneous structure of fundamental significance in understanding geological processes, and represents the classic site of such formations to geologists around the world. (May 1975) Owner: Federal, State

Salt Lake County

***NEFFS CANYON CAVE**	Wasatch National Forest. An extremely dangerous cave with no significant horizontal passages. Most passages dip steeply at a 45-60 degree gradient. The cave was formed by the capture of a surface stream. (May 1977) Owner: Federal

Washington County

***JOSHUA TREE NATURAL AREA**	Ten miles southwest of St. George. The only Joshua tree forest in Utah and one of the northernmost stands of tree yuccas in the county. Contains vegetation and animals predominantly of Mohave Desert affinity. (October 1966) Owner: Federal

VERMONT (11)

Addison County

BATTELL BIOLOGICAL PRESERVE

Four miles east of Middlebury. A rare, undisturbed, virgin hemlock- northern hardwoods climax forest. (May 1976) Owner: Private

***CORNWALL SWAMP**

Two miles southeast of Cornwall. The largest, unbroken red maple swamp in the State. (November 1973) Owner: State, Private

LITTLE OTTER CREEK MARSH

Two miles north-northwest of Ferrisburg. An outstanding, unspoiled example of a shallow water marsh maintaining itself under prevailing natural conditions. (May 1973) Owner: State, Private

Bennington County

***FISHER-SCOTT MEMORIAL PINES**

Two miles north of Arlington. A unique stand of old-growth white pine representing the culmination of the white pine subclimax forest in New England, and containing the largest pines in Vermont. (May 1976) Owner: State

Chittenden County

***CAMEL'S HUMP**

(extends into Washington County)--Midway between Montpelier and Burlington. An exceptional illustration of the complex anticlinal deformation which formed the Green Mountains, and the altitude-related zonation of its biota, containing the second largest extent of alpine-tundra vegetation in Vermont. (April 1968) Owner: State

MOUNT MANSFIELD NATURAL AREA

(extends into Lamoille County)--Three miles east of Underhill Center. An isolated, little-disturbed site with virgin spruce-fir forest on its upper slopes and an exceptional alpine tundra area on the summit ridge. (april 1980) Owner: State

Franklin County

FRANKLIN BOG

One mile east -northeast of Franklin. A magnificent example of an unspoiled, large, cold northern sphagnum-heath bog. (May 1973) Owner: Private

VERMONT

Lamoille County

MOLLY BOG	Three and one-half miles northeast of Stowe. A beautiful, classic example of a small, early successional, absolutely unspoiled cold northern bog. (may 1973) Owner: State, Private
MOUNT MANSFIELD NATURAL AREA	(see Chittenden County

Orleans County

***BARTON RIVER MARSH**	Three miles south of Newport. One of the best large, shallow, freshwater marshes in New England. (May 1973) Owner: State
***LAKE WILLOUGHBY NATURAL AREA**	Town of Westmore. The deepest lake in Vermont, and an exceptionally fine example of a trough cut by glacial scouring, containing multiple examples of the work of glaciers. (November 1967) Owner: State

Rutland County

GIFFORD WOODS	Nine miles northeast Rutland. A prime example of undisturbed, old-growth northern hardwood climax forest. (April 1980) Owner: State

Washington County

***CAMEL'S HUMP**	(see Chittenden County)

VIRGINIA (10)

Accomack County

***VIRGINIA COAST RESERVE**	(extends into Northampton County)--Ten miles south of Assateague Island. An extensive, relatively undisturbed barrier island-lagoon complex serving as a valuable refuge for migratory shorebirds and waterfowl and for colonial nesting birds. (March 1979) Owner: Private

Augusta County

GRAND CAVERNS	On the southern edge of Grottoes. The Caverns contain unique shield formations as well as draperies, flowstone, stalactites and stalagmites. (November 1973) Owner: Regional Park Authority, Private

Bath County

BUTLER CAVE-BREATHING CAVE	One half mile north of Burnsville. A tract containing two major cave systems, a 40-foot waterfall, a natural bridge, unusually fine "floating" crystalline formations, and an underground lake. (November 1973) Owner: Private

King George County

***CALEDON STATE PARK**	Five miles north-northeast of King George. One of the best examples of an old, undisturbed, oak-tulip poplar-dominated virgin upland forest in the country. (December 1974) Owner: State

Nansemond County

GREAT DISMAL SWAMP	20 miles southwest of Norfolk. A remnant of the original Great Dismal Swamp containing geological and ecological elements unique in the Nation. The variety of flora and fauna makes it a superb outdoor laboratory for the study of ecological processes. (June 1972) Owner: Federal

VIRGINIA

Orange County

MONTPELIER FOREST	This 200-acre site is located within Montpelier, the estate of President James Madison, approximately five miles southwest of Orange on both side of State Route 20. This site represents the best example of mature forest dominated primarily by tulip poplar and benzoin in the Piedmont natural region. The forest is composed of mainly oak, hickory, and poplar, many of which are believed to be between 200 and 300 years old. The site has high diversity and possesses high value to science and education. (November 1987) Owner: Private

Page County

***LURAY CAVERNS**	One and one-half miles west of Luray. A cave which is ornately decorated with cascades, columns, stalactites, stalagmites and pools. Discovered in 1878. (November 1973) Owner: Private

Rockbridge County

RICH HOLE	George Washington National Forest, 13 miles northwest of Lexington. An outstanding example of a "cove" hardwood forest. A well-protected watershed containing a virgin forest with remarkably large trees of several species. (December 1974) Owner: Federal, Private

Sussex County

***CHARLES C. STEIRLY NATURAL AREA**	Two miles of Dendron. An essentially virgin stand of climax bald cypress-water tupelo swamp forest. (December 1974) Owner: State

Virginia Beach

***SEASHORE NATURAL AREA**	Virginia Beach. Parallel dunes densely wooded with two distinct forest types of semitropical character and a sanctuary for abundant wildlife. (April 1965) Owner: State

VIRGIN ISLANDS (7)

St. Croix

GREEN CAY

Two and one-half miles east of Christiansted, one-quarter mile off St. Croix's northern shore. The cay is the nesting ground for the American oyster catcher, brown pelican and other shore birds. It is also one of the only two islands where the St. Croix ground lizard, now extinct on St. Croix and listed as an endangered species still exists. (August 1980) Owner: Federal

SANDY POINT

One mile south of Frederiksted. The only place in the United States which is regularly used for nesting by the endangered leatherback sea turtle. In addition, unique sand spits enclose a salt pond at this site. (August 1980 Owner: Federal

SALT RIVER BAY

Three and one-half miles northwest of Christiansted. The best remaining stands of mangrove in the Virgin Islands are found here, illustrating the zonation of red, black, and white mangrove. (February 1980) Owner: Virgin Islands Government, Private

VAGTHUS POINT

The best-known locality for Upper Cretaceous fossils in the Virgin Islands. (February 1980) Owner: Private

St. John

LAGOON POINT

On the southeastern shore of St. John, between Johnson Bay and Friis Bay. An excellent example of a Caribbean fringing reef. The site also includes a mangrove area and a salt pond. (February 1980) Owner: Virgin Islands Government, Private

St. Thomas

COKI POINT CLIFFS

Three and one-half miles east of Charlotte Amalie. These sea cliffs are one of the rare localities on St. Thomas Island where fossils are found. (February 1980) Owner: Virgin Islands Government, Private

WASHINGTON (17)

Adams County

DRUMHELLER CHANNELS

Located 12 miles south of Moses Lake, this 44,906 acre site is the most spectacular tract in the Columbia Plateau Natural Region of "butte-and-basin" scabland, an erosional landscape characterized by hundreds of isolated, steep-sided hills surrounded by a braided network of underfit channels. It represents and illustrates the dramatic modification of the Columbia Plateau volcanic terrain by late Pleistocene catastrophic glacial outburst floods that occurred at a scale remaining unparalleled on earth, either in the geologic record or in historical account. (May 1986) Owner: Federal, State and Private

Asotin County

GRANDE RONDE FEEDER DIKES

25 miles south of Clarkston. The best example of basalt dikes, the congealed feeder sources of the Columbia River basalt plateau. The site illustrates how these flows originated by eruption along multiple fissures. (August 1980) Owner: Private

GRANDE RONDE GOOSENECKS

20 miles south of Asotin. A 1,500-foot deep canyon which follows a tortuous path along meanders, illustrating regional uplift and forced entrenchment of a stream. (April 1980) Owner: Federal, State, Private

Benton County

WALLULA GAP

(extends into Walla Walla County)--16 miles south of Pasco. The largest, most spectacular, and most significant of the several large water gaps through basalt anticlines in the Columbia River basin. (August 1980) Owner: Federal, Municipal, Private

Clallam County

***POINT OF ARCHES**

Ten miles south of Cape Flattery. Relatively isolated pristine spectrum of environmental conditions from rocky tidelands to climax upland vegetation, and an outstanding exhibit of sea action in sculpturing a rocky shoreline. (June 1971) Owner: Federal, State

WASHINGTON

Douglas County

BOULDER PARK AND MCNEIL CANYON HAYSTACK ROCKS

This 4,368-acre area is composed of two adjacent sites located about 19 miles and 8.5 miles, respectively, from Chelan. Both sites together contain the greatest concentration and most illustrative examples of glacial erratics (large glacier-transported boulders) in the Columbia Plateau natural region. They are the visible products of dynamic glacier processes they provide important evidence for the direction of movement and location of glacier ice on the Columbia Plateau during the last glaciation. Due to the lack of vegetation in this area, these sites are also probably the most illustrative examples of glacial erratics in the U.S. (May 1986) Owner: State and Private

SIMS CORNER ESKER AND KAME COMPLEX

This 31,120-acre site, located 17 miles north of Coulee City, contains the best examples in the Columbia Plateau natural region of landforms resulting from stagnation and rapid retreat of the ice sheet during the last glaciation. The ice stagnation features at the site, including eskers and kame deposits, are highly visible and well preserved owing to the arid climate and lack of vegetation, and so are perhaps the most illustrative of such features in the U.S. (May 1986) Owner: Federal, State and Private

THE GREAT GRAVEL BAR OF MOSES COULEE

This 3,952-acre site, located 19 miles west of Coulee City, contains the largest and best example of a pendent river bar formed by catastrophic glacial outburst floods that swept across the Columbia Plateau prior to the last Pleistocene glaciation. The impressive scale of this feature, deposited in Moses Coulee, provides dramatic evidence for the violent flood waters that formed and once filled the coulee. As a constructional landform, it thus serves to complement to Drumhellers Channels which was eroded during the same flood events further downstream. (May 1986)

WASHINGTON

WITHROW MORAINE AND JAMERSON LAKE DRUMLIN FIELD

This 67,840-acre site, located immediately adjacent to Withrow, contains the best examples of drumlins and the most illustrative segment of the only Pleistocene terminal moraine in the Columbia Plateau natural region. Both features together provide readily observable evidence for the large-scale depositional and erosional processes that accompany continental glaciation; they are also the only such glacial features in the world to show a clear geological relationship to catastrophic flooding, which occurred prior to the last advance of the ice sheet. (May 1986) Owner: Private

Grant County

DRUMHELLER CHANNELS

(see Adams County)

***GRAND COULEE**

between Grand Coulee and Soap Lake. An illustration of a series of geological events including outpourings of lava, advance and recession of glacial ice formation and retreat of waterfalls, and the cutting of the Columbia River channel. (April 1965) Owner: Federal, State, Private

Kittitas County

***GINKGO PETRIFIED FOREST**

29 miles east of Ellensburg. Thousands of logs petrified in lava flows containing an unusually large number of tree species. Logs of the ginkgo tree, rarely found as fossil wood, are located here. (October 1965) Owner: State

UMTANUM RIDGE WATER GAP

14 miles north of Yakima. One of the anticlinal ridges in the Yakima Folded Ridges subsection of the Columbia Basin, illustrating the geological processes of tectonic folding and antecedent stream cutting. (November 1980) Owner: Federal, State, Private

Okanogan County

DAVIS CANYON

This 415-acre site, located 12 miles southwest of Okanogan, contains one of the largest and least disturbed examples of antelope bitterbrush/Idaho fescue shrub steppe remaining in the Columbia Plateau natural region. (May 1986) Owner: State and Private

WASHINGTON

Pierce County

NISQUALLY DELTA	(extends into Thurston County--15 miles east of Olympia. An unusually fine example of an estuarine ecosystem, and the only natural resting area for migratory waterfowl in the southern Puget Sound region. (June 1971) Owner: Federal, State, Private

Thurston County

***MIMA MOUNDS**	One and one-half miles west of Little Rock. Prairie containing unusual soil pimoles of black silt-gravel ranging in height from barely perceptible to a maximum of seven feet. (May 1966) Owner: State
NISQUALY DELTA	(see Pierce County

Walla Walla County

WALLULA GAP	(see Benton County)

Whitman County

ROSE CREEK PRESERVE	10 miles northwest of Pullman, this site is considered to be the best remaining example of the aspen phase of the hawthorne/cow parsnip habitat type in the Columbia Plateau. It is highly valuable for scientific research. (December 1984) Owner: Private
STEPTOE AND KAMIAK BUTTES	50 miles south of Spokane. Isolated mountain peaks of older rock surrounded by basalt, rising above the surrounding lava plateau. Part of outliers of Couer d' Alene Mountains of Idaho. (October 1965, April 1980) Owner: State, County, Private

WEST VIRGINIA (14)

Greenbrier County

ORGAN CAVE SYSTEM — Three miles southeast of Ronceverte, extending north and south of Organ Cave. The largest cave system in the State, containing seven caves, one of which is Organ Cave. Noted also for its saltpeter troughs and vats. (November 1973) Owner: Private

***LOST WORLD CAVERNS** — Two miles north of Lewisburg. Similar to Carlsbad Caverns in New Mexico, these caverns feature terraced pedestal-like stalagmites, flowstone, curtains, rimstone, domepits, and waterfalls. (November 1973) Owner: Private

Monroe County

GREENVILLE SALTPETER CAVE — One-quarter mile north of Greenville. The largest of the saltpeter caves in West Virginia, containing rimstone pools and saltpeter deposits. (November 1973) Owner: Private

Pendleton County

GERMANY VALLEY KARST AREA — Between Riverton and Mouth of Seneca. One of the largest cove or intermountain karst areas in the country, unique because all the ground water recharge and solution activities are linked with percipitation within the cove. (May 1973) Owner: Federal, Private

SINNETT-THORN MOUNTAIN CAVE SYSTEM — One-half mile northwest of Moyers. The cave includes rooms at various levels connected by crawlways and vertical shafts, waterfalls, and deep pits. (November 1973) Owner: Private

Pocahontas County

***CRANBERRY GLADES BOTANICAL AREA** — Monongahela National Forest, five miles northwest of Hillsboro. The largest and best example of "cranberry glades" in West Virginia where natural cold air drainage and moist substrate have provided an ideal setting for a northern sphagnum bog. Contains three major vegetation types: bog forest, shrub thickets, and open glade. (December 1974) Owner: Federal

***GAUDINEER SCENIC AREA** — (extends into Randolph County)--Monongahela National Forest, five miles north of Durbin. The best of the remaining virgin red spruce forests in the State. (December 1974) Owner: Federal

WEST VIRGINIA

SWAGO KARST AREA	Three miles west of Marlington. A classic illustration of features associated with karst topography and terrain, including caverns and other passages. (November 1973) Owner: Federal, Private
Preston County	
***CATHEDRAL PARK**	Four miles west of U.S. 219 on 50. Contains a remnant virgin hemlock forest and dense thickets of great rhododendron. A cool, poorly drained site. (October 1965) Owner: State
***CRANESVILLE SWAMP NATURE SANCTUARY**	(See Maryland)
***BLISTER RUN SWAMP**	Monongahela National Forest, four miles northwest of Durbin. A good, high-altitude balsam fir swamp, probably the southernmost extension of this type of forest, providing habitat for several uncommon and rare plants. (December 1974) Owner: Federal
***GAUDINEER SCENIC AREA**	(see Pocohantas County)
***SHAVERS MOUNTAIN SPRUCE-HEMLOCK STAND**	Monongahela National Forest, seven miles northwest of Harman. An old growth red spruce-hemlock stand called a " spruce flat", a disjunct component of the more northern hemlock-white pine-northern hardwood forest region. (December 1974) Owner: Federal
Tucker County	
***BIG RUN BOG**	Monongahela National , seven miles east of Parsons. The area contains a relict Pleistocene high altitude northern sphagnum-red spruce bog far south of its normal range, with large numbers of rare plants and animals. (December 1974) Owner: Federal
CANAAN VALLEY	Five miles east of Davis. As a splendid "museum" of Pleistocene habitats, the area contains an aggregation of these habitats seldom found in the eastern United States. It is unique as a northern boreal relict community at this latitude by virtue of its size, elevation and diversity. (December 1974) Owner: Private

WEST VIRGINIA

*FISHER SPRING RUN BOG	Monongahela National Forest, 11 miles southeast of Davis. An excellent example of a sphagnum-red spruce bog illustrating vegetation zonation. (December 1974) Owner: Federal

WISCONSIN (18)

Ashland County

KAKAGON SLOUGHS	Two miles north of Odanah. An excellent representative of a true freshwater delta by virtue of its large size, complex mixture of marsh, bog and dune vegetation types, and undisturbed condition. Perhaps the finest marsh complex on the upper Great Lakes. (November 1973) Owner: Indian trust (Bad River Tribe), private

Bayfield County

***MOQUAH BARRENS RESEARCH NATURAL AREA**	Chequamegon National Forest, 16 miles West of Ashland. Representative of the jackpine-scrub oak barrens (savannas) of the glacial outwash area of northwestern Wisconsin. (February 1980) Owner: Federal

Buffalo County

CHIPPEWA RIVER BOTTOMS	One-half mile north of Wabasha, Minnesota. The largest single stand of bottomland hardwood forest along the once widespread post-glacial forest, including a large great blue heron rookery. (November 1973) Owner: Federal, State

WSICONSIN

Dane County

***CAVE OF THE MOUNDS**

Located approximately 2 miles east of Blue Mounds State Park and directly below Brigham Farms, this cave provides an exceptional illustration of two principal modes of limestone cave formation (speleogenesis): the solution of cave passageways by "vadose" water flowing above and also by "phreatic" groundwater flowing below the water table. The original portion of the cave was formed by phreatic flow along intersecting joints, and later was enlarged by vadose flow along an underlying fracture. Because these different processes thus occurred in separate joint systems, the cave also illustrates the importance of fracture patterns in controlling speleogensis. In addition, Cave of the Mounds is richly decorated with cave formations (speleothems) of most known varieties, including stalamites measuring 18 feet in height, and exhibits many colorful displays of mineral deposits, including pure calcite. The cave is formed in a 300-foot thick formation of ordovician dolomite, and is located within the unglaciated area of Wisconsin 15 miles west of the Wisconsinan terminal moraine. It is managed for educational and commercial purposes and is used extensively as a living laboratory by local secondary schools, regional speleogical societies, and various universities and museums from throughout the Nation. (November 1987) Owner: Private

Door County

***RIDGES SANCTUARY-TOFT'S POINT-MUD LAKE AREA**

Two and one-half miles northeast of Baileys Harbor. A series of sand ridges and swales with associated boreal forest and bog vegetation, and unusually high species diversity, as well as the best mixed stand of large red and white pine, hemlock and northern hardwoods on the western shore of Lake Michigan. (November 1973) Owner: State

Fond du Lac County

***SPRUCE LAKE BOG**

Kettle Moraine State Forest, two miles northwest of Dundee. A superb, unspoiled example of a northern bog processing a relict flora and fauna from early post-glacial times. (November 1973) Owner: State, Private

WASHINGTON

Forest County

BOSE LAKE HEMLOCK HARDWOODS — Nicolet National Forest, 13 miles east of Eagle River. A mature northern hardwood hemlock stand containing the virgin stand of hemlock in Wisconsin (February 1980) Owner: Federal

Grant County

***WYALUSING HARDWOOD FOREST** — Wyalusing State Park, six miles north of Bagley. The area exhibits high biological diversity illustrating nine major vegetation types, and contains several rare plant species and abundant wildlife, including some endangered species. (November 1973) Owner: State

Green County

ABRAHAM'S WOODS — A remnant of regional climax maple - basswood forest, rare in southern Wisconsin. (November 1973) Owner: State

Iowa County

AVOCA RIVER-BOTTOM PRAIRIE — 47 miles west of Madison. The largest intact prairie in Wisconsin, containing a nearly full complement of species. (February 1980) Owner: State

Kenosha County

***CHIWAUKEE PRAIRIE** — Five miles south of Kenosha. The best remaining wet prairie in the State, a remnant of once widespread vegetation along the southern shores of Lake Michigan, including several rare plant species. (November 1973) Owner: State, Private

Manitowoc County

POINT BEACH RIDGES — Eight miles northeast of Manitowoc. Alternating ridges and swales formed by previous water levels of Lake Michigan exhibit a range of successional vegetation states. (February 1980) Owner State

Marquette County

***SUMMERTON BOG** — Three miles southeast of Oxford. A relatively large, undisturbed, and floristically diverse area illustrating the slow, natural invasion of post-glacial plant communities into a predominantly relict glacial community, and providing habitat for many rare plant and animal species. (November 1973) Owner: Private

WISCONSIN

Oneida County

FINNERUD FOREST SCIENTIFIC AREA

An excellent representative of the northern coniferous forest complex. One of the few sizeable areas in the Lake States containing red pine forest over 100 years of age. (November 1973) Owner: State

Ozaukee County

CEDARBURG BOG

West of Saukville. The largest and most outstanding bog in southeastern Wisconsin, serving as a refugium for many northern species of plants and birds and providing habitat for a great variety of wildlife. (November 1973 Owner: State, Private

Sauk County

BARABOO RANGE

30 miles northwest of Madison. An example of an exhumed mountain range illustrating changing landscape through geologic time. The climate, soils, fauna and vegetation exhibit great local diversity. (February 1980) Owner: State, Private

Sawyer County

***FLAMBEAU RIVER HEMLOCK-HARDWOOD FOREST**

Flambeau River State Forest, 20 miles southwest of Park Falls. The best and largest remnant of the old-growth conifer-hardwood forest in Wisconsin. Severely damaged by a windstorm in 1977, it is in the process of regeneration. (November 1973) Owner: State

Vernon County

KICKAPOO RIVER NATURAL AREA

Between Ontario and La Farge. The area contains the largest undisturbed concentration of exposed seeping sandstone in the State, and is a good example of a river in the Driftless Area with many entrenched meanders. A combination of geologic factors creates a multitude of microhabitats resulting in a highly diverse ecological situation supporting many flora species, some of which are endangered. (May 1975) Owner: Federal, State

WYOMING (7)

Albany County

BIG HOLLOW	Seven miles west of Laramie. A 40 square-mile wind deflation basin scoured out by high winds during a prehistoric dry period, considered the largest demonstrable example of its type in the 48 contiguous States. (November 1980) Owner: State, Private
***BONE CABIN FOSSIL AREA**	One of the most significant sites for Jurassic terrestrial vertebrate fossils, including Jurassic mammals. (November 1973) Owner: Private
COMO BLUFF	Five miles east of Medicine Bow. Source of the first and best examples of Jurassic mammals and the discovery of 80 new vertebrate species. (May 1966, November 1973) Owner: Federal, State

Big Horn County

***CROOKED CREEK NATURAL AREA**	15 miles northeast of Lovell. A rich source of fossils of Early Cretaceous land vertebrates. (May 1966) Owner: Federal

Carbon County

COMO BLUFF	(see Albany County)

Fremont County

RED CANYON	15 miles south of Lander. A classic example of a dissected cuesta, consisting of gently sloping plains bounded on one edge by an escarpment. (November 1980) Owner: Federal, State, Private

Niobrara County

LANCE CREEK FOSSIL AREA	25 miles north of Lusk. Represents one of the most fossiliferous continental deposits of Mesozoic age anywhere in the world. (April 1966, November 1973) Owner: Federal, State, Private

Teton County

***TWO OCEAN PASS**	On the Continental Divide in Teton National Forest, 50 miles northeast of Jackson. Waters from the meadow at this pass divide to flow in opposite directions, toward the Gulf of Mexico and toward the Pacific Ocean. This is the point at which the Pacific Drainage cutthroat trout crossed the divide into the Mississippi Drainage. (October 1965) Owner: Federal

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